



**CALL NO. 315**

**CONTRACT ID. 151074**

**ESTILL COUNTY**

**FED/STATE PROJECT NUMBER FD04 SPP 033 0089 011-013**

**DESCRIPTION IRVINE-WINCHESTER ROAD(KY-89)**

**WORK TYPE BRIDGE WITH GRADE, DRAIN & SURFACE**

**PRIMARY COMPLETION DATE 240 WORKING DAYS**

**LETTING DATE: November 20,2015**

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN STANDARD TIME November 20,2015. Bids will be publicly announced at 10:00 AM EASTERN STANDARD TIME.

**PLANS AVAILABLE FOR THIS PROJECT.**

**REQUIRED BID PROPOSAL GUARANTY:** Not less than 5% of the total bid.

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**PART I**  
**SCOPE OF WORK**

ADMINISTRATIVE DISTRICT - 10

CONTRACT ID - 151074  
FD04 SPP 033 0089 011-013  
COUNTY - ESTILL  
PCN - DE03300891574  
FD04 SPP 033 0089 011-013

IRVINE-WINCHESTER ROAD(KY-89) RECONSTRUCT KY-89 FROM 260 FEET SOUTH OF RICE STREET IN IRVINE TO THE IRVINE BY-PASS.BRIDGE WITH GRADE, DRAIN & SURFACE SYP NO. 10-00363.10.  
GEOGRAPHIC COORDINATES LATITUDE 37:43:00.00 LONGITUDE 83:59:00.00

COMPLETION DATE(S):  
240 WORKING DAYS                      APPLIES TO ENTIRE CONTRACT



## **CONTRACT NOTES**

### **PROPOSAL ADDENDA**

All addenda to this proposal must be applied when calculating bid and certified in the bid packet submitted to the Kentucky Department of Highways. Failure to use the correct and most recent addenda may result in the bid being rejected.

### **BID SUBMITTAL**

Bidder must use the Department's Expedite Bidding Program available on the Internet web site of the Department of Highways, Division of Construction Procurement. ([www.transportation.ky.gov/construction-procurement](http://www.transportation.ky.gov/construction-procurement))

The Bidder must download the bid file located on the Bid Express website ([www.bidx.com](http://www.bidx.com)) to prepare a bid packet for submission to the Department. The bidder must submit electronically using Bid Express.

### **JOINT VENTURE BIDDING**

Joint venture bidding is permissible. All companies in the joint venture must be prequalified in one of the work types in the Qualifications for Bidders for the project. The bidders must get a vendor ID for the joint venture from the Division of Construction Procurement and register the joint venture as a bidder on the project. Also, the joint venture must obtain a digital ID from Bid Express to submit a bid. A joint bid bond of 5% may be submitted for both companies or each company may submit a separate bond of 5%.

### **UNDERGROUND FACILITY DAMAGE PROTECTION**

The contractor is advised that the Underground Facility Damage Protection Act of 1994, became law January 1, 1995. It is the contractor's responsibility to determine the impact of the act regarding this project, and take all steps necessary to be in compliance with the provision of the act.

### **SPECIAL NOTE FOR COMPOSITE OFFSET BLOCKS**

Contrary to the Standard Drawings (2012 edition) the Cabinet will allow 6" composite offset blocks in lieu of wooden offset blocks, except as specified on proprietary end treatments and crash cushions. The composite blocks shall be selected from the Cabinet's List of Approved Materials.

## **REGISTRATION WITH THE SECRETARY OF STATE BY A FOREIGN ENTITY**

Pursuant to KRS 176.085(1)(b), an agency, department, office, or political subdivision of the Commonwealth of Kentucky shall not award a state contract to a person that is a foreign entity required by [KRS 14A.9-010](#) to obtain a certificate of authority to transact business in the Commonwealth (“certificate”) from the Secretary of State under [KRS 14A.9-030](#) unless the person produces the certificate within fourteen (14) days of the bid or proposal opening. If the foreign entity is not required to obtain a certificate as provided in [KRS 14A.9-010](#), the foreign entity should identify the applicable exception. Foreign entity is defined within [KRS 14A.1-070](#).

**For all foreign entities required to obtain a certificate of authority to transact business in the Commonwealth, if a copy of the certificate is not received by the contracting agency within the time frame identified above, the foreign entity’s solicitation response shall be deemed non-responsive or the awarded contract shall be cancelled.**

Businesses can register with the Secretary of State at <https://secure.kentucky.gov/sos/ftbr/welcome.aspx>.

## **SPECIAL NOTE FOR PROJECT QUESTIONS DURING ADVERTISEMENT**

Questions about projects during the advertisement should be submitted in writing to the Division of Construction Procurement. This may be done by fax (502) 564-7299 or email to [kytc.projectquestions@ky.gov](mailto:kytc.projectquestions@ky.gov). The Department will attempt to answer all submitted questions. The Department reserves the right not to answer if the question is not pertinent or does not aid in clarifying the project intent.

The deadline for posting answers will be 3:00 pm Eastern Daylight Time, the day preceding the Letting. Questions may be submitted until this deadline with the understanding that the later a question is submitted, the less likely an answer will be able to be provided.

The questions and answers will be posted for each Letting under the heading “Questions & Answers” on the Construction Procurement website ([www.transportation.ky.gov/contract](http://www.transportation.ky.gov/contract)). The answers provided shall be considered part of this Special Note and, in case of a discrepancy, will govern over all other bidding documents.

## **HARDWOOD REMOVAL RESTRICTIONS**

The US Department of Agriculture has imposed a quarantine in Kentucky and several surrounding states, to prevent the spread of an invasive insect, the emerald ash borer.

Hardwood cut in conjunction with the project may not be removed from the state. Chipping or burning on site is the preferred method of disposal.

### **INSTRUCTIONS FOR EXCESS MATERIAL SITES AND BORROW SITES**

Identification of excess material sites and borrow sites shall be the responsibility of the Contractor. The Contractor shall be responsible for compliance with all applicable state and federal laws and may wish to consult with the US Fish and Wildlife Service to seek protection under Section 10 of the Endangered Species Act for these activities.

### **ACCESS TO RECORDS**

The contractor, as defined in KRS 45A.030 (9) agrees that the contracting agency, the Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this contract for the purpose of financial audit or program review. Records and other prequalification information confidentially disclosed as part of the bid process shall not be deemed as directly pertinent to the contract and shall be exempt from disclosure as provided in KRS 61.878(1)(c). The contractor also recognizes that any books, documents, papers, records, or other evidence, received during a financial audit or program review shall be subject to the Kentucky Open Records Act, KRS 61.870 to 61.884.

In the event of a dispute between the contractor and the contracting agency, Attorney General, or the Auditor of Public Accounts over documents that are eligible for production and review, the Finance and Administration Cabinet shall review the dispute and issue a determination, in accordance with Secretary's Order 11-004. (See attachment)

10/29/12



**Steven L. Beshear**  
Governor

Commonwealth of Kentucky  
Finance and Administration Cabinet  
**OFFICE OF THE SECRETARY**  
Room 383, Capitol Annex  
702 Capital Avenue  
Frankfort, KY 40601-3462  
(502) 564-4240  
Fax (502) 564-6785

**Lori H. Flanery**  
Secretary

## **SECRETARY'S ORDER 11-004**

### **FINANCE AND ADMINISTRATION CABINET**

#### **Vendor Document Disclosure**

**WHEREAS**, in order to promote accountability and transparency in governmental operations, the Finance and Administration Cabinet believes that a mechanism should be created which would provide for review and assistance to an Executive Branch agency if said agency cannot obtain access to documents that it deems necessary to conduct a review of the records of a private vendor that holds a contract to provide goods and/or services to the Commonwealth; and

**WHEREAS**, in order to promote accountability and transparency in governmental operations, the Finance and Administration Cabinet believes that a mechanism should be created which would provide for review and assistance to an Executive Branch agency if said agency cannot obtain access to documents that it deems necessary during the course of an audit, investigation or any other inquiry by an Executive Branch agency that involves the review of documents; and

**WHEREAS**, KRS 42.014 and KRS 12.270 authorizes the Secretary of the Finance and Administration Cabinet to establish the internal organization and assignment of functions which are not established by statute relating to the Finance and Administration Cabinet; further, KRS Chapter 45A.050 and 45A.230 authorizes the Secretary of the Finance and Administration Cabinet to procure, manage and control all supplies and services that are procured by the Commonwealth and to intervene in controversies among vendors and state agencies; and

**NOW, THEREFORE**, pursuant to the authority vested in me by KRS 42.014, KRS 12.270, KRS 45A.050, and 45A.230, I, Lori H. Flanery, Secretary of the Finance and Administration Cabinet, do hereby order and direct the following:

- I. Upon the request of an Executive Branch agency, the Finance and Administration Cabinet ("FAC") shall formally review any dispute arising where the agency has requested documents from a private vendor that holds a state contract and the vendor has refused access to said documents under a claim that said documents are not directly pertinent or relevant to the agency's inquiry upon which the document request was predicated.
- II. Upon the request of an Executive Branch agency, the FAC shall formally review any situation where the agency has requested documents that the agency deems necessary to

conduct audits, investigations or any other formal inquiry where a dispute has arisen as to what documents are necessary to conclude the inquiry.

- III. Upon receipt of a request by a state agency pursuant to Sections I & II, the FAC shall consider the request from the Executive Branch agency and the position of the vendor or party opposing the disclosure of the documents, applying any and all relevant law to the facts and circumstances of the matter in controversy. After FAC's review is complete, FAC shall issue a Determination which sets out FAC's position as to what documents and/or records, if any, should be disclosed to the requesting agency. The Determination shall be issued within 30 days of receipt of the request from the agency. This time period may be extended for good cause.
- IV. If the Determination concludes that documents are being wrongfully withheld by the private vendor or other party opposing the disclosure from the state agency, the private vendor shall immediately comply with the FAC's Determination. Should the private vendor or other party refuse to comply with FAC's Determination, then the FAC, in concert with the requesting agency, shall effectuate any and all options that it possesses to obtain the documents in question, including, but not limited to, jointly initiating an action in the appropriate court for relief.
- V. Any provisions of any prior Order that conflicts with the provisions of this Order shall be deemed null and void.

**SPECIAL NOTE FOR RECIPROCAL PREFERENCE**

**Reciprocal preference to be given by public agencies to resident bidders**

**By reference, KRS 45A.490 to 45A.494 are incorporated herein and in compliance regarding the bidders residency. Bidders who want to claim resident bidder status should complete the Affidavit for Claiming Resident Bidder Status along with their bid in the Expedite Bidding Program. Submittal of the Affidavit should be done along with the bid in Bid Express.**

03/01/2011

### **ASPHALT MIXTURE**

Unless otherwise noted, the Department estimates the rate of application for all asphalt mixtures to be 110 lbs/sy per inch of depth.

### **INCIDENTAL SURFACING**

The Department has included in the quantities of asphalt mixtures established in the proposal estimated quantities required for resurfacing or surfacing mailbox turnouts, farm field entrances, residential and commercial entrances, curve widening, ramp gores and tapers, and road and street approaches, as applicable. Pave these areas to the limits as shown on Standard Drawing RPM-110-06 or as directed by the Engineer. In the event signal detectors are present in the intersecting streets or roads, pave the crossroads to the right of way limit or back of the signal detector, whichever is the farthest back of the mainline. Surface or resurface these areas as directed by the Engineer. The Department will not measure placing and compacting for separate payment but shall be incidental to the Contract unit price for the asphalt mixtures.

### **ASPHALT PAVEMENT RIDE QUALITY CATEGORY A**

The Department will apply Pavement Rideability Requirements on this project in accordance with Section 410, Category A.

### **OPTION A**

Be advised that the Department will accept compaction of asphalt mixtures furnished for driving lanes and ramps, at 1 inch (25mm) or greater, on this project according to OPTION A in accordance with Section 402 and Section 403 of the current Standard Specifications. The Department will require joint cores as described in Section 402.03.02 for surface mixtures only. The Department will accept compaction of all other asphalt mixtures according to OPTION B.

## ***SPECIAL NOTE***

### **For Tree Removal**

#### **Estill County KY-89 Reconstruction Item No. 10-363.10**

NO CLEARING OF TREES 3 INCHES OR GREATER (DIAMETER BREAST  
HEIGHT) FROM APRIL 1 – AUGUST 15.

**If there are any questions regarding this note, please contact David Waldner,  
Director, Division of Environmental Analysis, 200 Mero Street, Frankfort, KY  
40601, Phone: (502) 564-7250.**



**SPECIAL NOTE CONCERNING**  
**TYPICAL SECTIONS**  
**ESTILL COUNTY**  
**KY 89 Widening**  
**Item No. 10-363.10**

**THIS SHALL SERVE AS A NOTICE TO THE CONTRACTOR THAT CROSS SECTIONS FOR THIS PROJECT WERE DEVELOPED FOR A PAVEMENT THICKNESS OF 16.75 INCHES. THE PAVEMENT DESIGN WAS LATER REVISED TO 15.25 INCHES. TYPICAL SECTIONS WERE ADJUSTED TO REFLECT THIS CHANGE. HOWEVER, CROSS SECTIONS AND EARTHWORK QUANTITIES WERE NOT REVISED AND, IN THIS CASE, TYPICAL SECTIONS GOVERN OVER CROSS SECTIONS.**

**SPECIAL NOTE FOR INLAID PAVEMENT MARKERS**

**I. DESCRIPTION**

Except as provided herein, perform all work in accordance with the Department's Standard and Supplemental Specifications and applicable Standard and Sepia Drawings, current editions. Article references are to the Standard Specifications. This work shall consist of:

- (1) Maintain and Control Traffic; and (2) Furnish and install Inlaid Pavement Markers (IPMs) in recessed grooves; and (3) Any other work as specified by these notes and the Contract.

**II. MATERIALS**

The Department will sample all materials in accordance with the Department's Sampling Manual. Make the materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing unless otherwise specified in these Notes.

**A. Maintain and Control Traffic.** See Traffic Control Plan.

**B. Markers.** Provide reflective lenses with depth control breakaway positioning tabs. Before furnishing the markers, provide to the Engineer the manufacturer's current recommendations for adhesives and installation procedures. Use one brand and design throughout the project. Use markers meeting the specifications in the table below.

SPECIFICATIONS FOR HOUSING AND REFLECTOR	
Material:	Polycarbonate Plastic
Weight:	Housing 2.00 oz.
	Reflector 2.00oz.
Housing Size:	5.00" x 3.00" x 0.70" high
Specific Intensity of Reflectivity at 0.2° Observation Angle	
White:	3.0 at 0°entrance angle
	1.2 at 20°entrance angle
Yellow:	60% of white values
Red:	25% of white values

**C. Adhesives.** Use adhesives that conform to the manufacturer's recommendations.

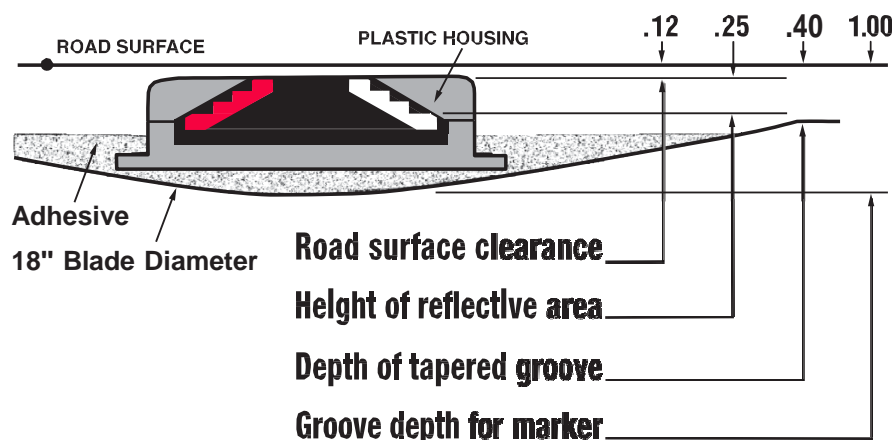
### III. CONSTRUCTION

**A. Experimental Evaluation.** The University of Kentucky Transportation Center will be evaluating this installation of IPMs. Notify the Engineer a minimum of 14 calendar days prior to beginning work. The Engineer will coordinate the University's activities with the Contractor's work.

**B. Maintain and Control Traffic.** See Traffic Control Plan.

**C. Installation.** Install IPMs in recessed grooves cut into the final course of asphalt pavement according to the manufacturer's recommendations. Do not cut the grooves until the pavement has cured sufficiently to prevent tearing or raveling. Cut installation grooves using diamond blades on saws that accurately control groove dimensions. Remove all dirt, grease, oil, loose or unsound layers, and any other material from the marker area which would reduce the bond of the adhesive. Maintain pavement surfaces in a clean condition until placing markers.

Prepare the pavement surfaces, and install the markers in the recessed groove according to the drawing below. Use an approved snowplowable epoxy adhesive. Ensure that the adhesive bed area is equal to the bottom area of the marker, and apply adhesive in sufficient quantity to force excess out around the entire perimeter of the marker. Use materials, equipment, and construction procedures that ensure proper adhesion of the markers to the pavement surface according to the manufacturer's recommendations. Remove all excess adhesive from in front of the reflective faces. If any adhesive or foreign matter cannot be removed from the reflective faces, or if any marker fails to properly adhere to the pavement surface, remove and replace the marker at no additional cost to the Department.

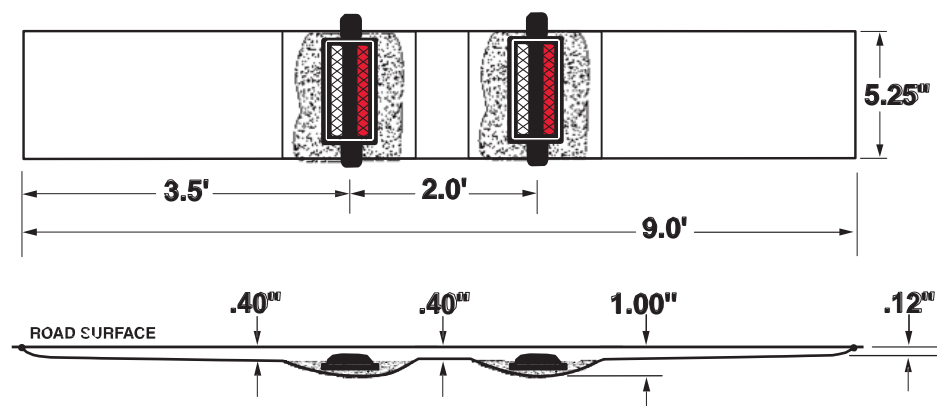


**D. Location and Spacing.** Install the markers in the pattern for high reflectivity with two (2) IPMs per groove. Locate and space markers as shown in the current standard drawings or sepias (note: use Inlaid Pavement Markers wherever Type V Pavement Markers are called for). Do not install markers on bridge decks. Do not install a marker

## Inlaid Pavement Markers

Page 3 of 4

on top of a pavement joint or crack. Offset the recessed groove a minimum of 2 inches from any longitudinal pavement joint or crack and at least one inch from the painted stripe, ensuring that the finished line of markers is straight with minimal lateral deviation. Give preference to maintaining the 2-inch offset between recessed groove and joint as opposed to keeping the line of markers straight.



Place inlaid markers as much in line with existing pavement striping as possible. Place markers installed along an edge line or channelizing line so that the near edge of the plastic housing is no more than one inch from the near edge of the line. Place markers installed along a lane line between and in line with the dashes. Do not place markers over the lines except where the lines deviate visibly from their correct alignment, and then only after obtaining the Engineer's prior approval of the location.

If conflicts between recessed groove placement in relation to pavement joint and striping cannot be resolved, obtain the Engineer's approval to eliminate the marker or revise the alignment.

**E. Disposal of Waste.** Dispose of all removed asphalt pavement, debris, and other waste at sites off the right of way obtained by the Contractor at no additional cost to the Department. See Special Note for waste and Borrow.

**F. Restoration.** Be responsible for all damage to public and/or private property resulting from the work. Restore all damaged features in like kind materials and design at no additional cost to the Department.

**G. On-Site Inspection.** Make a thorough inspection of the site prior to submitting a bid and be thoroughly familiar with existing conditions so that the work can be expeditiously performed after a contract is awarded. The Department will consider submission of a bid as evidence of this inspection having been made and will not honor any claims for money or grant Contract time extensions resulting from site conditions.

**H. Caution.** Do not take information shown on the drawings and in this proposal and the types and quantities of work listed as an accurate or complete evaluation of the

Inlaid Pavement Markers  
Page 4 of 4

material and conditions to be encountered during construction, but consider the types and quantities of work listed as approximate only. The bidder must draw his own conclusion as to the conditions encountered. The Department does not give any guarantee as to the accuracy of the data and no claim will be considered for additional compensation or extension of Contract time if the conditions encountered are not in accordance with the information shown.

#### **IV. MEASUREMENT**

**A. Maintain and Control Traffic.** See Traffic Control Plan.

**B. "INLAID PAYMENT MARKER"** shall be measured as each. One (1) installation of "INLAID PAVEMENT MARKER" will consist of grooving the pavement, removing asphalt cuttings and debris, preheating pavement to remove moisture, adhesives, and installation of two (2) markers with all lenses in accordance with this note.

**Note: Each pay item of Inlaid Pavement Marker will require two markers.**

#### **V. PAYMENT**

**A. Maintain and Control Traffic.** See Traffic Control Plan.

**B. Inlaid Pavement Markers.** The Department will make payment for the completed and accepted quantity of completely installed "INLAID PAVEMENT MARKERS" at the Contract unit price, each. Accept payment as full compensation for all labor, equipment, materials, and incidentals to accomplish this work to the satisfaction of the Engineer. A system of one (1) groove and two (2) markers shall be paid as one "INLAID PAVEMENT MARKER". The bid item "INLAID PAVEMENT MARKER" shall be used regardless of the color and type of lenses required.

## **SPECIAL NOTE FOR AWARD OF CONTRACT**

Contrary to Section 103.02 of the Standard Specifications for Road and Bridge Construction, the Department may hold and not award the contract for a period not to exceed ninety (90) calendar days from the letting.

RECOMMENDATION FOR PICKUP OF ITEMS TO BE INSTALLED  
ON TRAFFIC SIGNALS/LIGHTING

Item Number: 10-363.10  
County: ESTILL  
Description: KY 89 SCHOOL FLASHERS

Special items			
2		Complete solar school flasher system	Special Order
Poles			
2	T-04-0150	Lighting Pole 30' w/no arm mongoose luminaire	Special Order

Electrical Contractor Name  
Electrical Contractor Supervisor  
Project Engineer  
Project Engineer attests that the mentioned contractor is the actual electrical contractor on this project  
Signature of Project Engineer or Designee

Contact number for Supervisor

Contact number for Project Engineer

### **Special Note for Bridge Demolition, Renovation and Asbestos Abatement**

**If the project includes any bridge demolition or renovation, the successful bidder is required to notify Kentucky Division for Air Quality (KDAQ) via filing of form (DEP 7036) a minimum of 10 days prior to commencement of any bridge demolition or renovation work.**

**Any available information regarding possible asbestos containing materials (ACM) on or within bridges to be affected by the project has been included in the bid documents. These are to be included with the Contractor's notification filed with the KDAQ. If not included in the bid documents, the Department will provide that information to the successful bidder for inclusion in the KDAQ notice as soon as possible. If there are no documents stating otherwise, the bidders should assume there are no asbestos containing materials that will in any way affect the work.**





**TRANSPORTATION CABINET**

Frankfort, Kentucky 40622  
[www.transportation.ky.gov/](http://www.transportation.ky.gov/)

**Steven L. Beshear**  
Governor

**Michael W. Hancock, P.E.**  
Secretary

## Memorandum

**To:** Brandon Baker  
**CC:** Tony Vinegar  
**From:** O'Dail Lawson  
Environmental Scientist II  
Division of Environmental Analysis  
**Date:** 9/3/2014  
**Re:** Asbestos Inspection Report for 10-361.10

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**This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.**

### **Project and Structure Information**

**Project #** Estill 10-361.10

**Bridge #** 033B00002N

**Description:** The concrete samples collected were negative for asbestos. No abatement necessary.

**Inspection Date:** August 20<sup>th</sup>, 2014

### **Results**

The results revealed that there is no ACM abatement required at this time.



**Fax:** (502) 491-7111

## BULK SAMPLE ASBESTOS ANALYSIS

Analysis N #	2308266	Address:	Estill County/ 10-363.10
Client Name:	KYTC		033 B00002N
Sampled By:	O'Dail Lawson		

[illegible]

**Methodology : EPA Method 600/R-93-116**

Date Analyzed : 26-Aug-14

**Analyst : Winterford Mensah**

Reviewed By:

*Kintana Mencia*  
Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government. Partial reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA # 102459

AJHA #1 02459



# Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West

Frankfort, Kentucky 40622

(502) 564-7250 fax (502) 564-5655

**O'Dail Lawson** [o'dail.lawson@ky.gov](mailto:o'dail.lawson@ky.gov)

KYTC

Address: 200 Mero Street

Frankfurt  
KY

Phone: 502-782-5020

**Fax: 502-564-5655**

PO#:

**Client Information** **KY TRANSPORTATION CABINET**

**Results Code:**

ND = None Detected

### FTD = Filter Tampering or Damaged

N/A = Not Applicable

### Samplers (signatures):

Project or Subject Reference

Estill 10-363.10 03380002W

Sample ID	Sample Description
1	...
2	...
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Eq-1 Rail Concrete

Fig-2	Adjustment @ concrete
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K2-3	Paint chip
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## Time

12.10.11

Asbestos bulk

[illegible]

## Analysis Requested

10

Garrett Gray

[illegible]

**Preservative**

N/A

Relinquished By:

**Date/Time:**

Received By:

Date/Time:

**Relinquished By:**

Date/Time:

Received at Lab By:

Date/Time:

KYTC COC.xlsx

# *The El Group, Inc.*

This certifies that

*Tilmon O'Dail Lawson*

*Student Address: 132 Old Fort Drive, Georgetown, Kentucky 40324*

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

## *Asbestos Inspector Refresher (4-Hour) Training Course*

7214080013

Certificate Number

7910

Social Security Number

August 15, 2014

Course Dates

August 15, 2014

Exam Date

August 15, 2015

Expiration Date

Louisville, KY

Course Location

*Barry A. Maxwell*

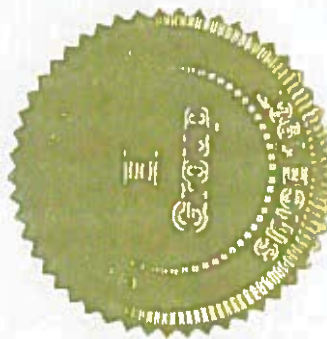
Barry Maxwell, Training Manager

*Kerri Boddy*

Kerri Boddy, Principal Instructor

*Kerri Boddy*

Kerri Boddy, Exam Administrator



3240 Office Pointe Place, Suite 102  
Louisville, KY 40220  
888-372-5859



**TRANSPORTATION CABINET**

Frankfort, Kentucky 40622  
[www.transportation.ky.gov/](http://www.transportation.ky.gov/)

**Steven L. Beshear**  
Governor

**Michael W. Hancock, P.E.**  
Secretary

## Memorandum

**To:** Brandon Baker  
**CC:** Tony Vinegar  
**From:** O'Dail Lawson  
Environmental Scientist II  
Division of Environmental Analysis  
**Date:** 9/3/2014  
**Re:** Asbestos Inspection Report for 10-361.10

---

**This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.**

### **Project and Structure Information**

**Project #** Estill 10-361.10

**Bridge #** 033B00003N

**Description:** The concrete samples collected were negative for asbestos. No abatement necessary.

**Inspection Date:** August 20<sup>th</sup>, 2014

### **Results**

The results revealed that there is no ACM abatement required at this time.







**Fax: (502) 491-7111**

Analysis N #	2308265	Address:	Estill County / 10 - 361.10
Client Name:	KYTC		033 B00003N
Sampled By:	O'Dail Lawson		

[illegible]

Reviewed By: *Vincent M. Mera*  
Signature

AJHA #1 02459



# Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West

Frankfort, Kentucky 40622

(502) 564-7250 fax (502) 564-5655

KYTC

Address: 200 Mero Street

Frankfort  
KY

Phone: 502-782-5020

Fax: 502-564-5655

**Client Information** **KY TRANSPORTATION CABINET**

**Results Code:**

ND = None Detected

**FTD = Filter Tampering or Damaged**

N/A = Not Applicable

### Samplers (signature):

### Project or Subject Reference

033B00003N

10-361.10

Sample ID	Sample Description
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Date \_\_\_\_\_

## Time

## Analysis Requested

Asbestos bull's west side

## Matrix

**Cont.**

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Date/Time:

Received By:

Date/Time:

**Relinquished By:**

Date/Time:

Received at Lab By:

Date/Time:

KYTC COC.xlsx

# *The El Group, Inc.*

This certifies that

*Tilmon O'Dail Lawson*

*Student Address: 132 Old Fort Drive, Georgetown, Kentucky 40324*

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

## *Asbestos Inspector Refresher (4-Hour) Training Course*

7214080013

Certificate Number

7910

Social Security Number

August 15, 2014

Course Dates

August 15, 2014

Exam Date

August 15, 2015

Expiration Date

Louisville, KY

Course Location

*Barry A. Maxwell*

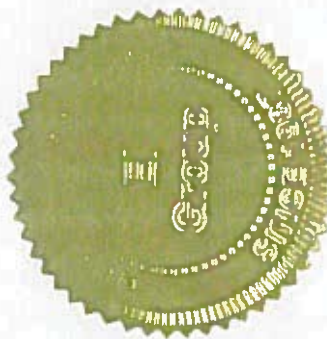
Barry Maxwell, Training Manager

*Kerri Boddy*

Kerri Boddy, Principal Instructor

*Kerri Boddy*

Kerri Boddy, Exam Administrator



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KENTUCKY TRANSPORTATION CABINET  
Department of Highways  
DIVISION OF RIGHT OF WAY & UTILITIES

TC 62-226  
Rev. 07/2015  
Page 1 of 1

# RIGHT OF WAY CERTIFICATION

ITEM #	COUNTY	PROJECT #	FEDERAL PROJECT #
10-363.10	Estill	1100 FD04 033 8260803R	None

**PROJECT DESCRIPTION** Reconstruct KY89 from NCL of Irvine to 0.5 mile N of KY 1840 at Estill Co High School

☐ **NO ADDITIONAL RIGHT OF WAY REQUIRED**

Construction will be within the limits of the existing right of way. The right of way was acquired in accordance with FHWA regulations under the Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970, as amended. No additional rights of way or relocation assistance were required for this project.

☐ **ADDITIONAL RIGHT OF WAY REQUIRED AND CLEARED**

TOTAL NUMBER OF PARCELS ON PROJECT	IMPROVEMENTS
NUMBER OF PARCELS THAT HAVE BEEN ACQUIRED BY:	
Signed Deed	<input type="checkbox"/> There were no improvements within the required right of way
Condemnation	<input type="checkbox"/> All improvements have been removed from the required right of way
Signed Right of Entry Agreement	
<b>RELOCATION ASSISTANCE</b>	
Relocation Assistance was not required for this project	<input type="checkbox"/> Improvements are currently being removed and it is anticipated that right of way will be cleared prior to the letting date
All parties have been relocated in accordance with FHWA regulations	<input type="checkbox"/> Improvement removal will be included in the construction contract

☒ **ADDITIONAL RIGHT OF WAY REQUIRED WITH EXCEPTION**

TOTAL NUMBER OF PARCELS ON PROJECT	
61	
Number of parcels acquired by Deed, Condemnation or Signed Right of Entry Agreement	
51	

EXCEPTION(S)	ANTICIPATED DATE OF POSSESSION	IMPROVEMENTS
3,34 & 36	11/15/15	<input type="checkbox"/> There were no improvements within the required right of way
4,38,41 & 44	12/15/15	<input type="checkbox"/> All improvements have been removed from the required right of way
47,48 & 58	12/15/15	<input checked="" type="checkbox"/> Improvements are currently being removed and it is anticipated that right of way will be cleared prior to the letting date
		<input type="checkbox"/> Improvement removal will be included in the construction contract

**RELOCATION ASSISTANCE**

Relocation assistance was not required for this project ☐

All parties have been relocated in accordance with FHWA regulations ☒

**Notes/Comments:**

<b>LPA</b>		<b>Right of Way Director</b>	
Printed Name	Bruce K. Nix	Printed Name	Jim Loy
Signature	<i>[Signature]</i>	Signature	<i>[Signature]</i>
Date	10/8/15	Date	08 Oct 2015
<b>Right of Way Supervisor</b>		<b>FHWA</b>	
Printed Name		Printed Name	
Signature		Signature	
Date		Date	

## UTILITIES AND RAIL CERTIFICATION NOTE

**ESTILL COUNTY**  
**FD04 033 0089 011-013**  
**KY 89 – From Rice St. in Irvine to Irvine Bypass**  
**10-363.10**

### GENERAL PROJECT NOTE ON UTILITY PROTECTION

Care should be exercised when operating under overhead lines. Columbia Gas has underground lines in the area that they will be relocating and should not be disturbed after relocation.

### NOTE: DO NOT DISTURB THE FOLLOWING UTILITIES LOCATED WITHIN THE PROJECT DISTURB LIMITS

N/A

**\*The Contractor is fully responsible for protection of all utilities listed above\***

### THE FOLLOWING COMPANIES ARE RELOCATING/ADJUSTING THEIR UTILITIES WITHIN THE PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO CONSTRUCTION

N/A

### THE FOLLOWING COMPANIES HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE COMPANY OR THE COMPANY'S SUBCONTRACTOR AND IS TO BE COORDINATED WITH THE ROAD CONTRACT

**Windstream** estimates new pole setting by 2/28/16. This is not a completion date for Windstream. Windstream's proposed plans are available for informational purposes. The contractor shall review plans for conflicts to roadway construction and schedule their work accordingly as to not interfere with Windstream's relocation.

**Columbia Gas of Kentucky** estimates their relocation to be complete by 8/1/2016. Columbia's proposed plans are available for informational purposes. The contractor shall review plans for conflicts to roadway construction and schedule their work accordingly as to not interfere with Columbia's relocation.

**Kentucky Utilities** estimates relocation work to be complete by 8/30/2016. Kentucky Utilities will be relocating existing power line to hang on new location of Windstream poles.

**Irvine Online** estimates relocation work to be complete by 11/30/2016. Irvine Online will be relocating existing cable to hang on new location of Windstream poles.

**Windstream Communications** estimates relocation work to be complete by 3/30/2017. Windstream will be placing new poles, relocating telecommunication lines from existing pole locations to new pole locations, and removing existing poles.

UTILITIES AND RAIL CERTIFICATION NOTE

ESTILL COUNTY

FD04 033 0089 011-013

KY 89 – From Rice St. in Irvine to Irvine Bypass

10-363.10

The Department will consider submission of a bid as the Contractor’s agreement to not make any claims for additional compensation due to delays or other conditions created by the operations of **Windstream Communications, Columbia Gas of Kentucky, Kentucky Utilities, and Irvine Online**. Working days will not be charged for those days on which work on **Windstream Communications, Columbia Gas of Kentucky, Kentucky Utilities, and Irvine Online** facilities is delayed, as provided in the current edition of the KY Standard Specifications for Road and Bridge Construction. Should a difference of opinion arise as to the rights of the Contractor and others working within the limits of, or adjacent to the project, the KYTC Resident Engineer will decide as to the respective rights of the various parties involved in order to assure the completion of the Department’s work in general harmony and in a satisfactory manner, and his decision shall be final and binding upon the Contractor.

THE FOLLOWING COMPANIES HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE ROAD CONTRACTOR AS INCLUDED IN THIS CONTRACT

Irvine Municipal Utilities has water and sewer that is to be relocated by the highway contractor as detailed in the water and sewer relocation plans. Work should be coordinated with Irvine Municipal Utilities.

THE FOLLOWING RAIL COMPANIES HAVE FACILITIES IN CONJUNCTION WITH THIS PROJECT AS NOTED

- ☒ No Rail Involved
- ☐ Minimal Rail Involved (See Below)
- ☐ Rail Involved (See Below)

SPECIAL CAUTION NOTE – PROTECTION OF UTILITIES

## UTILITIES AND RAIL CERTIFICATION NOTE

**ESTILL COUNTY**  
**FD04 033 0089 011-013**  
**KY 89 – From Rice St. in Irvine to Irvine Bypass**  
**10-363.10**

The contractor will be responsible for contacting all utility facility owners on the subject project to coordinate his activities. The contractor will coordinate his activities to minimize and, where possible, avoid conflicts with utility facilities. Due to the nature of the work proposed, it is unlikely to conflict with the existing utilities beyond minor facility adjustments. Where conflicts with utility facilities are unavoidable, the contractor will coordinate any necessary relocation work with the facility owner and Resident Engineer. The Kentucky Transportation Cabinet maintains the right to remove or alter portions of this contract if a utility conflict occurs.

The utility facilities as noted in the previous section(s) have been determined using data garnered by varied means and with varying degrees of accuracy: from the facility owners, a result of S.U.E., field inspections, and/or reviews of record drawings. The facilities defined may not be inclusive of all utilities in the project scope and are not Level A quality, unless specified as such. It is the contractor's responsibility to verify all utilities and their respective locations before excavating.

### **BEFORE YOU DIG**

The contractor is instructed to call 1-800-752-6007 to reach KY 811, the one-call system for information on the location of existing underground utilities. The call is to be placed a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor should be aware that owners of underground facilities are not required to be members of the KY 811 one-call Before-U-Dig (BUD) service. The contractor must coordinate excavation with the utility owners, including those whom do not subscribe to KY 811. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area.

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***Please Note: The information presented in this Utility Note is informational in nature and the information contained herein is not guaranteed.***

UTILITIES AND RAIL CERTIFICATION NOTE

ESTILL COUNTY  
FD04 033 0089 011-013  
KY 89 – From Rice St. in Irvine to Irvine Bypass  
10-363.10

AREA UTILITIES CONTACT LIST

<u>Utility Company/Agency</u>	<u>Contact Name</u>	<u>Contact Information</u>
<u>Windstream</u>	<u>Steve Johnson</u>	<u>859-357-6209</u>
<u>Irvine Online</u>	<u>Jim Hayes</u>	<u>606-723-4240</u>
<u>KU</u>	<u>Taylor Losson</u>	<u>859-626-3372</u>
<u>Columbia Gas</u>	<u>Brian Slone</u>	<u>859-288-0253</u>
<u>Irvine Municipal Utilities</u>	<u>Billy Williams</u>	<u>606-723-2197</u>

# **GENERAL UTILITY NOTES AND INSTRUCTIONS APPLICABLE TO ALL UTILITY WORK MADE A PART OF THE ROAD CONSTRUCTION CONTRACT**

The contractor should be aware the following utility notes and KYTC Utility Bid Item Descriptions shall supersede, replace and take precedence over any and all conflicting information that may be contained in utility owner supplied specifications contained in the contract, on plans supplied by the utility owner, or any utility owner specifications or information externally referenced in this contract.

Where information may have been omitted from these notes, bid item descriptions, utility owner supplied specifications or plans; the KYTC Standard Specifications for Road and Bridge Construction shall be referenced.

## **PROTECTION OF EXISTING UTILITIES**

The existing utilities shown on the plans are shown as best known at the time the plans were developed and are to be used as a guide only by the Contractor. The Contractor shall use all means at his disposal to accurately locate all existing utilities, whether shown on the plans or not, prior to excavation. The contractor shall protect these utilities during construction. Any damage to existing utilities during construction that are shown or not shown on the plans shall be repaired at the Contractor's expense.

## **PREQUALIFIED UTILITY CONTRACTORS**

Some utility owners may require contractors that perform relocation work on their respective facilities as a part of the road contract be prequalified or preapproved by the utility owner. Those utility owners with a prequalification or preapproval requirement are as follows:

***No contractors are required to be prequalified or preapproved by the utility owner(s) to perform utility relocation work under this contract.***

The bidding contractor needs to review the above list and look for a list of preapproved or prequalified contractors at the end of these general notes as identified above before bidding. Only contractors shown to be prequalified or preapproved by the utility owner on the following list(s) will be allowed to work on that utility as a part of this contract.

Any utility contractor that is not listed as prequalified or preapproved when the project is advertised for bid and wishes to be added must make request through the KYTC Contract Procurement website. The request should be made at least one week prior to the bidding deadline to allow for review and posting on

the KYTC Contract Procurement website. A contractor is only considered prequalified or preapproved when published on the KYTC Contract Procurement website. Contractors that contact the utility owner directly for preapproval or prequalification without contacting KYTC will not be considered for preapproval or prequalification for this contract. Contractors that are not prequalified or preapproved through KYTC before the bidding deadline will not be considered for prequalification or preapproval after bidding.

#### CONTRACT ADMINISTRATION RELATIVE TO UTILITY WORK

All utility work is being performed as a part of a contract administered by KYTC; there is not a direct contract between the utility contractor and utility owner. The KYTC Section Engineer is ultimately responsible for the administration of the road contract and any utility work included in the contract.

#### SUBMITTALS AND CORRESPONDENCE

All submittals and correspondence of any kind relative to utility work included in the road contract shall be directed to the KYTC Section Engineer, a copy of which may also be supplied to the utility owner by the contractor to expedite handling of items like material approvals and shop drawings. All approvals and correspondence generated by the utility owner shall be directed to the KYTC Section Engineer. The KYTC Section Engineer will relay any approvals or correspondence to the utility contractor as appropriate. At no time shall any direct communication between the utility owner and utility contractor without the communication flowing through the KYTC Section Engineer be considered official and binding under the contract.

#### ENGINEER

Where the word “Engineer” appears in any utility owner specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the “Engineer” is the Kentucky Transportation Cabinet (KYTC) Section Engineer or designated representative and the utility owner engineer or designated representative jointly. Both engineers must mutually agree upon all decisions made with regard to the utility construction. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

### INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

Where the word “Inspector” or “Resident Project Representative” appears in the utility specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the “Inspector” or “Resident Project Representative” is the utility owner inspector and KYTC inspector jointly. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

### NOTICE TO UTILITY OWNERS OF THE START OF WORK

One month before construction is to start on a utility, the utility contractor shall make notice to the KYTC Section Engineer and the utility owner of when work on a utility is anticipated to start. The utility contractor shall again make confirmation notice to the KYTC Section Engineer and the utility owner one week before utility work is to actually start.

### UTILITY SHUTDOWNS

The Contractor shall not shut down any active and in-service mains, utility lines or services for any reason unless specifically given permission to do so by the utility owner. The opening and closing of valves and operating of other active utility facilities for main, utility line or utility service shut downs are to be performed by the utility owner unless specific permission is given to the contractor by the owner to make shutdowns. If and when the utility owner gives the contractor permission to shutdown mains, utility lines or utility services, the contractor shall do so following the rules, procedures and regulations of the utility owner. Any permission given by the utility owner to the contractor to shutdown active and in-service mains, utility lines or services shall be communicated to the KYTC Section Engineer by the utility owner that such permission has been given.

Notice to customers of utility shut downs is sometimes required to be performed by the utility contractor. The contractor may be required; but, is not limited to, making notice to utility customers in a certain minimum amount of time in advance of the shut down and by whatever means of communication specified by the utility owner. The means of communication to the customer may be; but is not limited to, a door hanger, notice by newspaper ad, telephone contact or any combination of communication methods deemed necessary, customary and appropriate by the utility owner. The contractor should refer to the utility owner specifications for requirements on customer notice.

Any procedure the utility owner may require the contractor to perform by specification or plan note and any expense the contractor may incur to comply with the utility owner’s shut down procedure and notice to customers shall be considered an incidental expense to the utility construction.

### STATIONS AND DISTANCES

All stations and distances, when indicated for utility placement in utility relocation plans or specifications, are approximate; therefore, some minor adjustment may have to be made during construction to fit actual field conditions. Any changes in excess of 6 inches of plan location shall be reviewed and approved jointly by the KYTC Section Engineer or designated representative and utility owner engineer or



designated representative. Changes in location without prior approval shall be remedied by the contractor at his own expense if the unauthorized change creates an unacceptable conflict or condition.

### RESTORATION

Temporary and permanent restoration of paved or stone areas due to utility construction shall be considered incidental to the utility work. No separate payment will be made for this work. Temporary restoration shall be as directed by the KYTC Section Engineer. Permanent restoration shall be “in-kind” as existing.

Restoration of seed and sod areas will be measured and paid under the appropriate seeding and sodding bid items established in the contract for roadway work.

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BELOW ARE NOTES FOR WHEN “INST” ITEMS ARE IN THE CONTRACT MEANING THE UTILITY COMPANY IS PROVIDING CERTAIN MATERIALS FOR UTILITY RELOCATION

### MATERIAL

Contrary to Utility Bid Item Descriptions, those bid items that have the text “**Inst**” at the end of the bid item will have the major components of the bid item provided by the utility owner. No direct payment will be made for the major material component(s) supplied by the utility company. All remaining materials required to construct the bid item as detailed in utility bid item descriptions, in utility specifications and utility plans that are made a part of this contract will be supplied by the contractor. The contractor’s bid price should reflect the difference in cost due to the provided materials.

The following utility owners have elected to provide the following materials for work under this contract:

***No materials are being supplied by the utility owner(s). All materials are to be supplied by the contractor per bid item descriptions, utility specifications and utility plans.***

### SECURITY OF SUPPLIED MATERIALS

If any utility materials are to be supplied by the utility owner, it will be the responsibility of the utility contractor to secure all utility owner supplied materials after delivery to the project site. The utility contractor shall coordinate directly with the utility owner and their suppliers for delivery and security of the supplied materials. Any materials supplied by the utility owner and delivered to the construction site that are subsequently stolen, damaged or vandalized and deemed unusable shall be replaced with like materials at the contractor’s expense.

# Standard Water Bid Item Descriptions

**W AIR RELEASE VALVE** This bid item description shall apply to all air release valve installations of every size except those defined as “Special”. This item shall include the air release valve, main to valve connecting line or piping, manhole, vault, structure, access casting or doors, tapping the main, labor, equipment, excavation, proper backfill and restoration required to install the air release valve at the location shown on the plans or as directed in accordance with the specifications and standard drawings complete and ready for use. All air release/vacuum valves on a project shall be paid under one bid item regardless of size. No separate pay items will be established for size variations. Only in the case of the uniqueness of a particular air release valve would a separate bid item be established. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**BOLLARDS** This item is for payment for furnishing and installing protective guard posts at above ground utility installations. A bollard may consist of, but not limited to, a steel post set in concrete or any other substantial post material. This item shall include all labor, equipment, and materials needed for complete installation of the bollard as specified by the utility owner specifications and plans. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

*NOTE: A bid code for this item has been established in standard roadway bid items and shall be used for payment of this item. The bid code is 21341ND*

**W CAP EXISTING MAIN** This item shall include the specified cap, concrete blocking and/or mechanical anchoring, labor, equipment, excavation, backfill, and restoration required to install the cap at the location shown on the plans or as directed in accordance with the specifications. This item is not to be paid on new main installations. This pay item is only to be paid to cap existing mains. Caps on new mains are incidental to the new main. Any and all caps on existing mains shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W DIRECTIONAL BORE** Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of water main under streets, creeks, and etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore whether used as a carrier pipe or an encasement of a separate carrier pipe. This item shall also include pipe anchors at each end of the bore when specified to prevent the creep or contraction of the bore pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall not be size specific and no separate bid items will be established for size variations. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. Any and all directional bores in each contract shall be paid under one directional bore bid item included in the contract regardless of size. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W ENCASEMENT CONCRETE** Includes all labor, equipment, excavation, concrete, reinforcing steel, backfill, restoration, and etc., to construct the concrete encasement of the water main as shown on the plans, and in accordance with the specifications and standard drawings. Payment under this item shall be in addition to the carrier pipe as paid under separate bid items. Carrier pipe is not included in this bid item. Any and all concrete encasement shall be paid under one bid item included in the contract regardless of the size of the carrier pipe or the volume of concrete or steel reinforcement as specified in the plans and specifications. No separate bid items will be established for size variations. Measurement of pay quantity shall be from end of concrete to end of concrete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W ENCASEMENT STEEL BORED** This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to bore and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The sizes of encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

*(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.)* Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W ENCASEMENT STEEL OPEN CUT** This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to open cut and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The size encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

*(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.)* Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W FIRE HYDRANT ADJUST** Includes all labor, equipment, excavation, materials, and backfill to adjust the existing fire hydrant using the fire hydrant manufacturer's extension kit for adjustments of 18" or less. Adjustments greater than 18" require anchoring couplings and vertical bends to adjust to grade. The Contractor will supply and install all anchor couplings, bends, fire hydrant extension, concrete blocking, restoration, granular drainage material, etc, needed to adjust the fire hydrant complete and ready for use as shown on the plans, and in accordance with the specifications and standard drawings. This also includes allowing for the utility owner inspector to inspect the existing fire hydrant prior to adjusting, contractor returning unusable fire hydrants to the utility owner warehouse and picking up a replacement hydrant. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete and ready for use.

**W FIRE HYDRANT ASSEMBLY** Includes all labor, equipment, new fire hydrant, isolating valve and valve box, concrete pad around valve box (when specified in specifications or plans), piping, anchoring tee, anchoring couplings, fire hydrant extension, excavation, concrete blocking, granular drainage material, backfill, and restoration, to install a new fire hydrant assembly as indicated on plans and on standard drawings complete and ready for use. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W FIRE HYDRANT RELOCATE** This item includes all labor and equipment to remove the existing fire hydrant from its existing location and reinstalling at a new location. This item shall include a new isolating valve and valve box, concrete pad around valve box (when required in specifications or plans), new piping, new anchoring tee, anchoring couplings, fire hydrant extensions, concrete blocking, restoration, granular drainage material, excavation, and backfill as indicated on plans, specifications, and on standard drawings complete and ready for use. This item shall also include allowing for utility owner inspector to inspect the existing fire hydrant prior to reuse, contractor returning unusable fire hydrants to the utility owner warehouse and picking up a replacement hydrant for use, if the existing fire hydrant is determined unfit for reuse. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W FIRE HYDRANT REMOVE** This bid item includes removal of an abandoned fire hydrant, isolating valve, and valve box to the satisfaction of the engineer. The removed fire hydrant, isolating valve and valve box shall become the property of the contractor for his disposal as salvage or scrap. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W FLUSH HYDRANT ASSEMBLY** This item shall include the flushing hydrant assembly, service line, tapping the main, labor, equipment, excavation, backfill, and restoration required to install the flush hydrant at the location shown on the plans and in accordance with the specifications and standard drawings, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W FLUSHING ASSEMBLY** This item shall include the flushing device assembly, service line, meter box and lid, tapping the main, labor, equipment, excavation, backfill, and restoration required to install the

flushing device at the location shown on the plans and in accordance with the specifications and standard drawings, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W LINE MARKER** This item is for payment for furnishing and installing a ground level water utility line marker as specified by the utility owner specifications and plans. A line marker may consist of a post or monument of whatever materials specified and shall include markings and/or signage on same as specified by plans or specifications. This item shall include all labor, equipment, and materials needed for complete installation of the marker. This item shall be paid EACH (EA) when complete.

**W MAIN POINT RELOCATE** This item is intended for payment for horizontal and/or vertical relocation of a short length of an existing main at the locations shown on the plans. This bid item is to be used to relocate an existing water main at point locations such as to clear a conflict at a proposed drainage structure, pipe or any other similar short relocation situation, and where the existing pipe material is to be reused. The contractor shall provide any additional pipe or fitting material needed to complete the work as shown on the plans and specifications. The materials provided shall be of the same type and specification as those that exist. Substitution of alternative materials shall be approved by the engineer in advance on a case by case basis. New polyethylene wrap is to be provided (if wrap exists or is specified in the specifications to be used). If it is necessary that the pipe be disassembled for relay, payment under this item shall also include replacement of joint gaskets as needed. Bedding and backfill shall be provided and performed the same as with any other pipe installation as detailed in the plans and specifications. Payment under this item shall be for each location requiring an existing main to be relocated horizontally or vertically regardless of pipe size or relocation length. No separate pay items will be established for pipe size variations or relocation segment length variations. Water Main Relocate shall not be paid on a linear feet basis; but, shall be Paid EACH (EA) at each location when complete and placed in service. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

**W METER** This item is for payment for installation of all standard water meters of all sizes 2 inches ID or less as specified on the plans. This item shall include all labor, equipment, meter, meter box, casting, yoke, and any other associated material needed for installation of a functioning water meter in accordance with the plans and specifications, complete and ready for use. This item shall include connections to the new or existing water service line. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W METER ADJUST** This item includes all labor, equipment, excavation, materials, backfill, restoration, and etc., to adjust the meter casting to finished grade (whatever size exists) at the location shown on the plans or as directed in accordance with the specifications and standard drawings complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W METER RELOCATE** This item includes all labor, equipment, excavation, additional fittings, disinfection, testing, restoration, and etc., to relocate the existing water meter (whatever size exists), meter yoke, meter box, casting, and etc., from its old location to the location shown on the plans or as directed, in accordance with the specifications and standard drawings complete and ready for use. The new service pipe (if required) will be paid under short side or long side service bid items. Any and all meter

relocations of 2 inches or less shall be paid under one bid item included in the contract regardless of size. Each individual relocation shall be paid individually under this item; however, no separate bid items will be established for meter size variations of 2 inches ID or less. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W METER VAULT SIZE RANGE 1 OR 2** This item is for payment for installation of an underground structure for housing of a larger water meter, fittings, and valves as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or access doors, the specified meter(s) valve(s), all piping, and fitting materials associated with installing a functioning meter and vault in accordance with the plans, standard drawings, and specifications, complete and ready for use. The size shall be the measured internal diameter of the meter and piping to be installed. The size meter vault to be paid under size 1 or 2 shall be as follows:

Size Range 1 = All meter and piping sizes greater than 2 inches up to and including 6 inches  
Size Range 2 = All meter and piping sizes greater than 6 inches

This item shall be paid EACH (EA) when complete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

**W METER/FIRE SERVICE COMBO VAULT** This item is for payment for installation of an underground structure for housing of a water meter and fire service piping, fittings, and valves as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or access doors, the specified meter(s), valve(s), all piping, and fitting materials associated with installing a functioning meter and fire service vault in accordance with the plans and specifications, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W METER WITH PRESSURE REDUCING VALVE (PRV)** This item is for payment for installation of all standard water meters with pressure reducing valves (PRV) of all sizes 2 inches ID or less as specified on the plans. This item shall include all labor, equipment, meter, PRV, meter box, casting, yoke, and any other associated material needed for installation of a functioning water meter with PRV in accordance with the plans and specifications, complete and ready for use. This item shall include connections to the new or existing water service line. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W PIPE** This description shall apply to all PVC, ductile iron, and polyethylene/plastic pipe bid items of every size and type to be used as water main, except those bid items defined as "Special". This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, bends, tees, reducers, plugs, and caps), tracing wire with test boxes (if required by specification), polyethylene wrap (when specified), labor, equipment, excavation, bedding, restoration, testing, backfill, and etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. No additional payment will be made for rock excavation. This bid item includes material and placement of flowable fill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. This item shall also include pipe anchors, at each end of polyethylene pipe runs when

specified to prevent the creep or contraction of the pipe. Measurement of quantities under this item shall be through fittings, encasements, and directional bores (only when a separate carrier pipe is specified within the directional bore pipe). Measurements shall be further defined to be to the center of tie-in where new pipe contacts existing pipe at the center of connecting fittings, to the outside face of vault or structure walls, or to the point of main termination at dead ends. No separate payment will be made under pipe items when the directional bore pipe is the carrier pipe. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W PLUG EXISTING MAIN** This item shall include the specified plug, concrete blocking and/or anchoring, labor, equipment, excavation, backfill, and restoration required to install the plug in an existing in-service main that is to remain at the location shown on the plans or as directed in accordance with the specifications. Any and all plugs on all existing in-service mains shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

*NOTE: This utility bid item is not to be paid on new main installations or abandoned mains. This pay item is to plug existing in-service mains only. Plugs on new mains are incidental to the new main just like all other fittings.*

*NOTE: Plugging of existing abandon mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications For Road And Bridge Construction and paid using Bid Code 01314 Plug Pipe.*

**W PRESSURE REDUCING VALVE** This description shall apply to all pressure reducing valves (PRV) of every size required in the plans and specifications except those bid items defined as "Special". Payment under this description is to be for PRVs being installed with new main. This item includes the PRV as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), pit or vault, backfill, restoration, testing, disinfection, and etc., required to install the specified PRV at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. If required on plans and/or proposed adjoining DIP is restrained, PRVs shall be restrained. PRV restraint shall be considered incidental to the PRV and adjoining pipe. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W PUMP STATION** This item is for payment for installation of pumps and an above or below ground structure for housing of the pumps. This item shall include all pumps, piping, fittings, valves, electrical components, building materials, concrete, any other appurtenances, labor, equipment, excavation, and backfill, to complete the pump station installation as required by the plans, standard drawings, and specifications, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LUMP SUM (LS) when complete.

**W REMOVE TRANSITE (AC) PIPE** This item shall include all labor, equipment, and materials needed for removal and disposal of the pipe as hazardous material. All work shall be performed by trained and certified personnel in accordance with all environmental laws and regulations. Any and all transite AC pipe removed shall be paid under one bid item included in the contract regardless

of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W SERVICE LONG SIDE** This bid item description shall apply to all service line installations of every size bid up to and including 2 inch inside diameter, except those service bid items defined as "Special". This item includes the specified piping material, main tap, tapping saddle (if required), and corporation stop materials, coupling for connecting the new piping to the surviving existing piping, encasement of 2 inches or less internal diameter (if required by plan or specification), labor, equipment, excavation, backfill, testing, disinfection, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for service installations where the ends of the service connection are on opposite sides of the public roadway and the service line crosses the centerline of the public roadway as shown on the plans. The length of the service line is not to be specified. Payment under this item shall not be restricted by a minimum or maximum length. The contractor shall draw his own conclusions as to the length of piping that may be needed. Payment under this item shall include boring, jacking, or excavating across the public roadway for placement. Placement of a service across a private residential or commercial entrance alone shall not be reason to make payment under this item. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. This pay item does not include installation or relocation of meters. Meters will be paid separately. No additional payment will be made for rock excavation or for special bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W SERVICE SHORT SIDE** This bid item description shall apply to all service line installations of every size up to and including 2 inch internal diameter, except those service bid items defined as "Special". This item includes installation of the specified piping material of the size specified on plans, encasement of 2 inches or less internal diameter (if required by plan or specification), main tap, tapping saddle (if required), corporation stop, coupling for connecting the new piping to the surviving existing piping, labor, equipment, excavation, backfill, testing, disinfection, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for service installations where both ends of the service connection are on the same side of the public roadway, or when an existing service crossing a public roadway will remain and is being extended, reconnected, or relocated with all work on one side of the public roadway centerline as shown on the plans. The length of the service line is not to be specified and shall not be restricted to any minimum or maximum length. Payment shall be made under this item even if the service crosses a private residential or commercial entrance; but, not a public roadway. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. The contractor shall draw his own conclusions as to the length of piping that may be needed. This pay item does not include installation or relocation of meters. Meters will be paid separately. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W SERVICE RELOCATE** This item is for the relocation of an existing water service line where a meter is not involved, and where an existing service line can easily be adjusted by excavating alongside and moving the line horizontally and/or vertically a short distance without cutting the service line to avoid conflicts with road construction. This item shall include excavation, labor, equipment, bedding, and



backfill to relocate the line in accordance with the plans and specifications complete and ready for use. Payment under this item shall be for each location requiring relocation. Payment shall be made under this item regardless of service size or relocation length. No separate pay items will be established for size or length variation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W STRUCTURE ABANDONMENT** This item is to be used to pay for abandonment of larger above or below ground water structures such as meter vaults, fire pits, pump stations, tanks, and etc. Payment under this time shall not be limited to size or scope; however structures with connecting pipes of 2 inches or less shall not be paid under this item; but, shall be considered incidental to water construction, (i.e., abandonment of standard water meters up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted fill or flowable fill for abandonment of the structure in place and restoration complete. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W STRUCTURE REMOVAL** This item is to be used to pay for removal of larger above or below ground water structures such as meter vaults, fire pits, pump stations, tanks, and etc. Payment under this time shall not be limited to size or scope; however structures with connecting pipes of 2 inches or less shall not be paid under this item; but, shall be considered incidental to water construction, (i.e., removal of standard water meters up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted backfill for removal of the structure and restoration complete. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W TAPPING SLEEVE AND VALVE SIZE 1 OR 2** This item shall include the specified tapping sleeve, valve, valve box, concrete pad around valve box (when required in specifications or plans), labor, and equipment to install the specified tapping sleeve and valve, complete and ready for use in accordance with the plans and specifications. The size shall be the measured internal diameter of the live pipe to be tapped. The size tapping sleeve and valve to be paid under sizes 1 or 2 shall be as follows:

- Size 1 = All live tapped main sizes up to and including 8 inches
- Size 2 = All live tapped main sizes greater than 8 inches

Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W TIE-IN** This bid description shall be used for all main tie-in bid items of every size except those defined as "Special". This item includes all labor, equipment, excavation, fittings, sleeves, reducers, couplings, blocking, anchoring, restoration, disinfection, testing and backfill required to make the water main tie-in as shown on the plans, and in accordance with the specifications complete and ready for use. Pipe for tie-ins shall be paid under separate bid items. This item shall be paid EACH (EA) when complete.

**W VALVE** This description shall apply to all valves of every size required in the plans and specifications

except those bid items defined as “Special”. Payment under this description is to be for gate or butterfly valves being installed with new main. This item includes the valve as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, concrete pad around valve box (if required by specification), restoration, testing, disinfection, and etc., required to install the specified valve at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. If required on plans and/or proposed adjoining DIP is restrained, valves shall be restrained. Valve restraint shall be considered incidental to the valve and adjoining pipe. This description does not apply to cut-in valves. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W VALVE ANCHOR EXISTING** This bid item is intended to pay for installation of restraint hardware on an existing valve where no restraint exists to hold the valve in place to facilitate tie-ins and other procedures where restraint is prudent. This work shall be performed in accordance with water specifications and plans. This bid item shall include all labor equipment, excavation, materials and backfill to complete restraint of the designated valve, regardless of size, at the location shown on the plans, complete and ready for use. Materials to be provided may include, but is not limited to, retainer glands, lugs, threaded rod, concrete, reinforcing steel or any other material needed to complete the restraint. Should the associated valve box require removal to complete the restraint, the contractor shall reinstall the existing valve box, the cost of which shall be considered incidental to this bid item. No separate bid items are being provided for size variations. All sizes shall be paid under one bid item. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W VALVE BOX ADJUST** Includes all labor, equipment, valve box and valve stem extensions (if required), excavation, backfill, concrete pad around valve box (when specified in specifications or plans), restoration, and etc., to adjust the top of the box to finished grade complete and ready for use. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W VALVE CUT-IN** This bid description is for new cut-in valve installations of all sizes where installation is accomplished by cutting out a section of existing main. This item shall include cutting the existing pipe, supplying the specified valve, couplings or sleeves, valve box, concrete pad around valve box (when required in specifications or plans), labor, equipment, and materials to install the valve at the locations shown on the plans, or as directed by the engineer, complete and ready for use. Any pipe required for installation shall be cut from that pipe removed or supplied new by the contractor. No separate payment will be made for pipe required for cut-in valve installation. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**W VALVE VAULT** This item is for payment for installation of an underground structure for housing of specific valve(s) as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or doors, the specified valve(s), all piping, and fitting materials associated with installing a functioning valve vault in accordance with the plans, standard drawing, and specifications, complete and ready for use. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

# **Specifications**

for:

**KY 89 Water Line & Sanitary  
Sewer Relocations  
South of the Irvine Bypass  
Estill County, Kentucky**

**Irvine Municipal Utilities  
239 Broadway  
Irvine, Kentucky 40336**

**August 2015**

*Prepared by:*

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APPENDIX A – WATER METER TRANSMITTER SPECIFICATIONS

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## SECTION 02225 - EXCAVATING, BACKFILLING, AND COMPACTING FOR UTILITIES

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

The Contractor shall make excavations in such widths and depths as will give suitable room for below grade vaults, pump stations, etc., laying pipe to the lines, grades and elevations, furnish, place and compact all backfill materials specified herein or denoted on the Drawings. The materials, equipment, labor, etc., required herein are to be considered as part of the requirements and costs for installing the various pipes, structures and other items they are incidental to.

#### 1.02 RELATED WORK

- A. Section 02610 - Water Pipe and Fittings.
- B. Section 02731 - Gravity Sewers.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. Crushed stone material shall conform with the requirements of the applicable sections of the Kentucky Bureau of Highways Standard Specifications and shall consist of clean, hard, and durable particles or fragments, free from dirt, vegetation or objectionable materials.
- B. Two classes of crushed stone material are used in this Section. The type of material in each class is as follows:
  - 1. Class I - No. 9 Aggregate.
  - 2. Class II - Dense Graded Aggregate (DGA).

## PART 3 - EXECUTION

### 3.01 EXCAVATION OF TRENCHES

- A. Unless otherwise directed by the Engineer, trenches are to be excavated in open cuts.
  - 1. Where pipe is to be laid in gravel bedding or concrete cradle, the trench may be excavated by machinery to, or just below, the designated subgrade, provided that the material remaining at the bottom of the trench is no more than slightly disturbed.
  - 2. Where pipe is to be laid directly on the trench bottom, the lower part of trenches in earth shall not be excavated to subgrade by machinery. However, just before the pipe is to be placed, the last of the material to be excavated shall be removed by means of hand tools to form a flat or shaped bottom, true to grade, so that the pipe will have a uniform and continuous bearing and support on firm and undisturbed material between joints except for limited areas where the use of pipe slings may have disturbed the bottom.
- B. Trenches shall be sufficient width to provide working space on each side of the pipe and to permit proper backfilling around the pipe.
  - 1. The Contractor shall remove only as much of any existing pavement as is necessary for the prosecution of the Work. The pavement shall be cut with pneumatic tools, without extra compensation to the Contractor, to prevent damage to the remaining road surface. Where pavement is removed in large pieces, it shall be disposed of before proceeding with the excavation.
- C. All excavated materials shall be placed a safe distance back from the edge of the trench.
- D. Unless specifically directed otherwise by the Engineer, not more than 500 feet of trench shall be opened ahead of the pipe laying work of any one crew, and not more than 500 feet of open ditch shall be left behind the pipe laying work of any one crew. Watchmen or barricades, lanterns and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions, shall be provided by and at the expense of the Contractor.
- E. When so required, or when directed by the Engineer, only one-half of street crossings and road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfilled ditches shall be maintained in such manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged at the direction of the Engineer.
- F. Trench excavation shall include the removal of earth, rock, or other materials encountered in the excavating to the depth and extent shown or indicated on the Drawings.

### 3.02 WATER PIPE BEDDING

- A. Piping for water mains shall be supported as follows:
1. The trench bottom for water main piping shall be stable, continuous, relatively smooth and free of frozen material, clodded dirt, foreign material and rock or granular material larger than 1/2 inch in diameter. The foundation for water main piping shall be prepared so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe. Any uneven areas in the trench bottom shall be shaved-off or filled-in with Class I granular bedding. When the trench is made through rock, the bottom shall be lowered to provide 6 inches of clearance around the pipe. Class I granular bedding shall be used to bring the trench bottom to grade.
- B. After each pipe has been brought to grade, aligned, and placed in final position, earth material for water main piping shall be deposited and densified under the pipe haunches and on each side of the pipe up to the spring line of the pipe to prevent lateral displacement and hold the pipe in proper position during subsequent pipe jointing, bedding, and backfilling operations.
- C. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.
- D. Where an unstable (i.e., water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This is to be accomplished by undercutting the trench depth and replacing to grade with a foundation of crushed stone aggregate.
- E. The depth of the foundation is dependent upon the severity of the trench bottom. The size of stone aggregate used in the foundation will be determined by the condition of the unstable material. Once the trench bottom has been stabilized, the required Class I bedding material can be placed.
- F. It should be noted that no pipe shall be laid on solid or blasted rock.
- G. Pipe bedding as required in Paragraphs A, B, and D of this Section is **not** considered a separate pay item.

### 3.03 WATER PIPE BACKFILLING

- A. Initial Backfill:
1. This backfill is defined as that material which is placed over the pipe from the spring line to a point 6 inches above the top of the pipe. For water main piping,

initial backfill material shall be earth material free of rocks, acceptable to the Engineer or with Class I material when a condition exists mentioned in Paragraph A, 3. below.

2. Material used, whether earth or Class I, in the initial backfilling is **not** a separate pay item. Payment for the material is included in the unit price per linear foot of water main.
3. In areas where large quantities of rock are excavated and the available excavated earth in the immediate vicinity is insufficient for placing the required amount of backfill over the top of the pipe as set forth in Paragraph A.1, the Contractor shall either haul in earth or order Class I material for backfilling over the pipe. Neither the hauling and placement of earth nor the ordering and placement of Class I material to fulfill the backfill requirements set forth herein is considered a separate pay item.

B. Final Backfill:

1. There are two cases where the method of final backfilling varies. The various cases and their trench situations are as follows:
  - a. Case I - Areas not subject to vehicular traffic.
  - b. Case II - Paved areas including streets, drives, parking areas, and walks.
2. In all cases, walking or working on the completed pipelines, except as may be necessary in backfilling, will not be permitted until the trench has been backfilled to a point 6 inches above the top of the pipe. The method of final backfilling for each of the above cases is as follows:
  - a. Case I - The trench shall be backfilled from a point 6 inches above the top of the pipe to a point 8 inches below the surface of the ground with earth material free from large rock (over one-half cubic foot in volume), acceptable to the Engineer. The remainder of the trench shall be backfilled with earth material reasonably free of any rocks.
  - b. Case II - The trench shall be backfilled from a point 6 inches above the top of the pipe to a point 12 inches below the existing pavement surface with Class I (No. 9 crushed stone aggregate) material. The backfill shall be mechanically tamped in approximately 6-inch layers to obtain the maximum possible compaction. The remaining backfill shall be Class II (dense graded aggregate) material mechanically tamped to maximum possible compaction. The trench may be left with a slight mound if permitted by the Engineer. Where required by state or local regulations, a bituminous binder coarse detailed on the Drawings and specified in Section 02510 shall be incorporated in the final backfill.
3. Earth and Class I material used in final backfill is not a separate pay item. Payment shall be included in the price of water main.
4. Class II material used in final backfill shall be included in the unit price of the pipe.



- C. A sufficient amount of Class II material shall be stockpiled to insure immediate replacement by the Contractor of any settled areas. No extra payment will be made for the filling in of settled or washed areas by the Contractor.
- D. Excavated materials from trenches, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. It shall be the responsibility of the Contractor to obtain location or permits for its disposal, unless specific waste areas have been designated on the Drawings or noted in these Specifications. The cost of disposal of excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.

### 3.04 GRAVITY SEWER AND FORCE MAIN PIPE BEDDING

- A. Piping for gravity sewers and force mains shall be supported as follows:
  - 1. All gravity sewer piping shall be laid on a bed of granular material except when a concrete encasement situation occurs. All pipe bedding material shall be Class I (No. 9 crushed stone aggregate) and shall be placed to a depth of 4 inches in an earth trench and 6 inches in a rock trench. Aggregate bedding shall be graded to provide for a uniform and continuous support beneath the pipe at all points.
  - 2. The trench bottom for force main piping shall be stable, continuous, relatively smooth and free of frozen material, clodded dirt, foreign material and rock or granular material larger than 1/2 inch in diameter. The foundation for force main piping shall be prepared so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe. Any uneven areas in the trench bottom shall be shaved-off or filled-in with Class I granular bedding. When the trench is made through rock, the bottom shall be lowered to provide 6 inches of clearance around the pipe. Class I granular bedding shall be used to bring the trench bottom to grade.
- B. After each pipe has been brought to grade, aligned, and placed in final position, Class I material for gravity sewer piping and earth material for force main piping shall be deposited and densified under the pipe haunches and on each side of the pipe up to the spring line of the pipe to prevent lateral displacement and hold the pipe in proper position during subsequent pipe jointing, bedding, and backfilling operations.
- C. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.
- D. Where an unstable (i.e., water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This is to be accomplished by undercutting the trench depth and replacing to grade with a foundation of crushed stone aggregate.

- E. The depth of the foundation is dependent upon the severity of the trench bottom. The size of stone aggregate used in the foundation will be determined by the condition of the unstable material. Once the trench bottom has been stabilized, the required Class I bedding material can be placed.
- F. It should be noted that no pipe shall be laid on solid or blasted rock.
- G. Pipe bedding as required in Paragraphs A, B, and D of this Section is **not** considered a separate pay item.

### 3.05 GRAVITY SEWER AND FORCE MAIN BACKFILL

#### A. Initial Backfill:

- 1. This backfill is defined as that material which is placed over the pipe from the spring line to a point 6 inches above the top of the pipe. For gravity sewer piping the material shall be Class I (No. 9 crushed stone aggregate) and may be machine placed without compaction. Uneven places in the backfill shall be leveled by hand. For force main piping, initial backfill material shall be earth material free of rocks, acceptable to the Engineer or with Class I material when a condition exists mentioned in Paragraph A, 3. below.
- 2. Material used, whether earth or Class I, in the initial backfilling is **not** a separate pay item. Payment for the material is included in the unit price per linear foot of gravity sewer or force main.
- 3. In areas where large quantities of rock are excavated and the available excavated earth in the immediate vicinity is insufficient for placing the required amount of backfill over the top of the pipe as set forth in Paragraph A.1, the Contractor shall either haul in earth or order Class I material for backfilling over the pipe. Neither the hauling and placement of earth nor the ordering and placement of Class I material to fulfill the backfill requirements set forth herein is considered a separate pay item.

#### B. Final Backfill:

- 1. There are two cases where the method of final backfilling varies. The various cases and their trench situations are as follows:
  - a. Case I - Areas not subject to vehicular traffic.
  - b. Case II - Paved areas including streets, drives, parking areas, and walks.
- 2. In all cases, walking or working on the completed pipelines, except as may be necessary in backfilling, will not be permitted until the trench has been backfilled to a point 6 inches above the top of the pipe. The method of final backfilling for each of the above cases is as follows:
  - a. Case I - The trench shall be backfilled from a point 6 inches above the top of the pipe to a point 8 inches below the surface of the ground with earth material free from large rock (over one-half cubic foot in volume), acceptable to the Engineer. The remainder of the trench shall be backfilled with earth material reasonably free of any rocks.

- b. Case II - The trench shall be backfilled from a point 6 inches above the top of the pipe to a point 12 inches below the existing pavement surface with Class I (No. 9 crushed stone aggregate) material. The backfill shall be mechanically tamped in approximately 6-inch layers to obtain a compaction of 95 percent density as measured by the modified Procter Test. The remaining backfill shall be Class II (dense graded aggregate) material mechanically tamped to the compaction as required above for Class I material. The trench may be left with a slight mound if permitted by the Engineer. Where required by state or local regulations, a bituminous binder coarse detailed on the Drawings and specified in Section 02510 shall be incorporated in the final backfill.
  - 3. Earth and Class I material used in final backfill is not a separate pay item. Payment shall be included in the price of gravity sewer and force main.
  - 4. Class II material used in final backfill shall be included in the unit price for gravity sewer and force main.
- C A sufficient amount of Class II material shall be stockpiled to insure immediate replacement by the Contractor of any settled areas. No extra payment will be made for the filling in of settled or washed areas by the Contractor.
- D. Excavated materials from trenches, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. It shall be the responsibility of the Contractor to obtain location or permits for its disposal, unless specific waste areas have been designated on the Drawings or noted in these Specifications. The cost of disposal of excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.

### 3.06 PLACEMENT OF IDENTIFICATION TAPE

- A. The placement of detectable underground marking tape shall be installed over all utility lines. Care shall be taken to insure that the buried marking tape is not broken when installed and shall be Lineguard brand encased aluminum foil, Type III. The identification tape is manufactured by Lineguard, Inc., P.O. Box 426, Wheaton, IL 60187.
- B. The identification tape shall bear the printed identification of the utility line below it, such as "Caution - Buried Below". Tape shall be reverse printed; surface printing will not be acceptable. The tape shall be visible in all types and colors of soil and provide maximum color contrast to the soil. The tape shall meet the APWA color code, and shall be 2 inches in width. Colors are: yellow - gas, green - sewer, red - electric, blue - water, orange - telephone, brown - force main.

- C. The tape shall be the last equipment installed in the trench so as to be first out. The tape shall be buried 4 to 6 inches below top of grade. After trench backfilling, the tape shall be placed in the backfill and allowed to settle into place with the backfill. The tape may be plowed in after final settlement, installed with a tool during the trench backfilling process, unrolled before final restoration or installed in any other way acceptable to the Owner or Engineer.

END OF SECTION 02225

## SECTION 02610 - WATER PIPE AND FITTINGS

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install water main piping together with all appurtenances as shown and detailed on the Drawings and specified herein.

#### 1.02 RELATED WORK

- A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 02630 - Encasement Pipe.
- C. Section 02640 - Water Valves and Gates.
- D. Section 02675 - Disinfection of Potable Water Pipe.

### PART 2 - PRODUCTS

#### 2.01 DUCTILE IRON PIPE (DIP) AND FITTINGS

- A. Ductile iron pipe (DIP) shall conform to ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51 Standard. The pipe shall conform to pressure class 350 minimum unless noted otherwise. All pipe, fittings and joints should be capable of accommodating pressure up to 350 psi. The ductile iron pipe shall be as manufactured by Clow Corporation, U.S. Pipe & Foundry Company or approved equal.
- B. Fittings shall be ductile iron and in accordance with AWWA C153 and have a body thickness and radii of curvature conforming to ANSI A21.10 or ANSI A21.53 for compact fittings. Push-on type joints shall be single rubber gasket, with cast gasket socket and recessed bell with a tapered annular opening and flared socket. Plain spigot ends shall be suitably beveled to permit easy entry into the bell, centering and compressing the gasket. Push-on joints shall be equal to the "Tyton Joint" as manufactured by US Pipe & Foundry Company.
- C. Ductile iron flanged joint pipe shall conform to ANSI/AWWA C115/A 21.15 Standard and have a thickness Class of 53. The pipe shall have a rated working pressure of 250 psi with Class 125 flanges. Gaskets shall be ring gaskets with a thickness of 1/8 inch. Flange bolts shall conform to ANSI B 16.1.
- D. Flanged fittings shall meet all requirements of ANSI/AWWA C110/A21.10 (or A21.53

for compact fittings) and have Class 125 flanges. Fittings shall accommodate a working pressure up to 250 psi and be supplied with all accessories.

- E. Ductile iron mechanical joint fittings shall be in accordance with AWWA C153 and have a body thickness and radii of curvature conforming to ANSI A21.10 (or A21.53 for compact fittings) and have joints in accordance with ANSI/AWWA C111/A21.11. Fittings and joints shall be supplied with all accessories.
- F. All pipe and fittings shall be tar coated outside and shall receive a standard cement lining with bituminous seal coat on the inside in accordance with ASA Specification A21.40 (AWWA-C104).
- G. Cement mortar lining and seal coating for pipe and fittings, where applicable shall be in accordance with ANSI/AWWA C104/A21.4. Bituminous outside coating shall be in accordance with ANSI/AWWA C151/A21.51 for pipe and ANSI/AWWA C110/A21.10 for fittings.
- H. All ductile fittings shall be rated at 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast-iron grade 80-60-03 per ASTM Specification A339-55.
- I. No separate pay item has been established for fittings and no determination of the number of fittings required on the job has been made. The Contractor, during the bidding phase, shall determine the number of fittings required on the job and include the cost of the fittings and installation in the unit price for pipe.
- J. Restrained joint pipe and fittings shall be a boltless system equal to "Field- Lok" restraining gaskets or "TRFLEX Joint" as manufactured by US Pipe & Foundry Company.
- K. Ball and socket restrained joint pipe and fittings shall be a boltless system equal to USIFLEX manufactured by U.S. Pipe and Foundry Company or FLEX-LOK manufactured by American Pipe Company. Pipe shall have a working pressure rating of 250 psi and have a maximum joint deflection of 15 degrees. Nominal laying lengths shall be in the range of 18-feet 6-inches to 20-feet 6-inches.
- L. Pipe shall be as manufactured by U.S. Pipe & Foundry Company, American Cast Iron Pipe Company, or equal.

## 2.02 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

- A. Polyvinyl chloride (PVC) pipe for water mains shall be Class 200 (SDR 21) or Class 250 (SDR 17) PVC pressure rated pipe with either twin gasket joints or integral bell joints with rubber O-ring seals. All class 200 pipe shall meet the requirements of SDR 21 and all class 250 pipe shall meet the requirement of SDR 17.
- B. All PVC pipe shall conform to the latest revisions of ASTM D-1784 (PVC Compounds), ASTM D-2241 (PVC Plastic Pipe, SDR), and ASTM D-2672 (Bell-end PVC Pipe). PVC pipe shall have a minimum cell classification of 12454B or 12454C as defined in ASTM D-1784. Rubber gasketed joints shall conform to ASTM D-3139. The gaskets for the PVC pipe joint shall conform to ASTM F-477 and D-1869.
- C. Fittings shall be ductile iron and in accordance with Article 2.01 of this section.
- D. Rubber gasket joints shall provide adequate expansion to allow for a 50 degree change in temperature on one length of pipe. Lubrication for rubber connected couplings shall be water soluble, non-toxic, be non-objectionable in taste and odor and have no deteriorating affect on the PVC or rubber gaskets and shall be as supplied by the pipe manufacturer.
- E. All pipe and couplings shall bear identification markings that will remain legible during normal handling, storage and installation, which have been applied in a manner what will not reduce the strength of the pipe or the coupling or otherwise damage them. Pipe and coupling markings shall include the nominal size and OD base, material code designation, dimension ratio number, ASTM Pressure Class, ASTM designation number for this standard, manufacturer's name or trademark, seal (mark) of the testing agency that verified the suitability of the pipe material for potable-water service. Each marking shall be applied at intervals of not more than 5 feet for the pipe and shall be marked on each coupling.

## 2.03 POLYVINYL CHLORIDE (PVC) WATER PIPE - C.I. PIPE SIZE

- A. This pipe shall meet the requirements of AWWA C900 for Polyvinyl Chloride (PVC) Pressure Pipe. The pipe shall be PVC 1120 pipe with cast iron pipe equivalent ODs. All Class 150 pipe shall meet the requirements of SDR 18 and Class 200 meet the requirements of SDR 14.
- B. Provisions must be made for expansion and contraction at each joint with a rubber ring. The bell shall consist of an integral wall section with a solid cross-section rubber ring which meets the laboratory performance of ASTM D3139. The bell section shall be designed to be at least as strong as the pipe wall.

- C. Standard laying lengths shall be 20 feet  $\pm$  for all sizes. At least 85 percent of the total footage of pipe of any class and size shall be furnished in standard lengths, the remaining 15% in random lengths. Random lengths shall not be less than 10 feet long. Each standard and random length of pipe shall be tested to four times the class pressure of the pipe for a minimum of 5 seconds. The integral bell shall be tested with the pipe.

## PART 3 - EXECUTION

### 3.01 LAYING DEPTHS

In general, water mains shall be laid with a minimum cover of 30 inches, except as otherwise indicated on the Drawings.

### 3.02 UTILITY CROSSING CONCRETE ENCASEMENT

- A. At locations shown on the Contract Drawings, required by the Specifications, or as directed by the Engineer, concrete encasement shall be used when the clearance between the proposed water pipe and any existing utility pipe is 18 inches or less. Utility pipe includes underground sewer, gas, telephone, and electrical conduit, storm sewers, and any other pipe as determined by the Engineer.
- B. There are two cases of utility crossing encasement. Case I is applicable when the proposed water line is **above** the existing utility line. Case II is applicable when the proposed water line is laid **below** the utility line. In either case, the concrete shall extend to at least the spring line of each pipe involved.
- C. Concrete shall be 3000 psi and shall be mixed sufficiently wet to permit it to flow between the pipes to form a continuous bridge. In tamping the concrete, care shall be taken not to disturb the grade or line of either pipe or damage the joints.
- D. Concrete for this Work is not a separate pay item and will be considered incidental to utility pipe installation.

### 3.03 PIPE LAYING

- A. All pipe shall be laid with ends abutting and true to the lines and grades indicated on the plans. Pipe shall be fitted and matched so that when laid in the Work, it will provide a smooth and uniform invert. Supporting of pipe shall be as set out in Section 02225 and in no case shall the supporting of pipe on blocks be permitted.
- B. Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure it being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fittings shall be discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without



additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe. Bevel can be made with hand or power tools.

- C. The interior of the pipe, as the Work progresses, shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted so as to exclude earth or other material and precautions taken to prevent floatation of pipe by runoff into trench.
- D. Anchorage of Bends:
  - 1. At all tees, plugs, caps and bends of 11-1/4 degrees and over, and at reducers or in fittings where changes in pipe diameter occur, movement shall be prevented by using suitable harness, thrust blocks or ballast. Thrust blocks shall be as shown on the Drawings, with sufficient volumes of concrete being provided; however, care shall be taken to leave weep holes unobstructed and allow for future tightening of all nearby joints. Unless otherwise directed by the Engineer, thrust blocks shall be placed so that pipe and fitting joints will be accessible for repair.
  - 2. Bridles, harness or pipe ballasting shall meet with the approval of the Engineer. Steel rods and clamps shall be galvanized or otherwise rust-proofed or painted.
  - 3. No extra pay shall be allowed for work on proper anchorage of pipe, fittings or other appurtenances. Such items shall be included in the price bid for the supported item.
- E. No backfilling (except for securing pipe in place) over pipe will be allowed until the Engineer has the opportunity to make an inspection of the joints, alignment and grade in the section laid, but such inspection shall not relieve the Contractor of further liability in case of defective joints, misalignment caused by backfilling and other such deficiencies that are noted later.

### 3.04 JOINTING

All joint surfaces shall be cleaned immediately before jointing the pipe. The bell or groove shall be lubricated in accordance with the pipe manufacturer's recommendations. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket.

All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and joint assembly shall follow the direction of the manufacturer's of the joint material and of the pipe. The resulting joints shall be watertight and flexible.

### 3.05 TESTING OF WATER PIPE

- A. The completed work shall comply with the provisions listed herein, or similar requirements which will insure equal or better results. Suitable test plugs, water pump or other equipment and apparatus, and all labor required to properly conduct the tests shall be furnished by the Contractor at no expense to the Owner.

- B. Water main piping shall be pressure tested to 250 percent of the normal system operating pressure or to 150 percent of the rated working pressure of the pipe, whichever is less. At no time shall the test pressure exceed 150 percent of the pipe's rated working pressure. A pipe section shall be accepted if the test pressure does not fall more than 5 psi during the minimum 2-hour test period. The pipe shall be tested for allowable leakage according to AWWA C-600 (latest revision) concurrently with the pressure test.
- C. Where practicable, pipelines shall be tested between line valves or plugs in lengths of not more than 6,000 feet. Testing shall proceed from the source of water toward the termination of the line. The line shall be tested upon the completion of the first 6,000 feet. After the completion of two (2) consecutive tests without failure, the Contractor, at his option and with the Engineer's approval, may discontinue testing until the system is complete.
- D. All pipe, fittings and other materials found to be defective under test shall be removed and replaced at the Contractor's expense.
- E. Before applying the specified test pressure, air shall be expelled completely from the pipe, valves and hydrants. If permanent air vents are not located at high points within the test section, the Contractor shall install corporation cocks at such points so that the air can be expelled as the line is filled with water.
- F. All piping shall be tested for leakage at a pressure no less than that specified for the pressure test. The leakage shall be defined as the quantity of water that must be supplied to the tested section to maintain pressure within 5 psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water. The leakage shall be less than an allowable amount determined by the following equation:

$$L = \frac{SD(P)^{1/2}}{133,200}$$

Where

L =allowable leakage (gallons/hour)  
S =length of pipe tested, in feet  
D =nominal diameter of pipe (inches)  
P =test pressure (psig)

- G. Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing the leaks and retesting as the Engineer may require without additional compensation. All visible leaks are to be repaired regardless of the amount of leakage.
- H. If in the judgement of the Engineer, it is impracticable to follow the foregoing procedures

for any reason, modifications in the procedures shall be made as required and as acceptable to the Engineer, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

### 3.06 PLACEMENT OF IDENTIFICATION TAPE

The placement of detectable underground marking tape shall be installed over all water mains as specified in Section 02225.

END OF SECTION 02610

SECTION 02630 - ENCASEMENT PIPE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install encasement pipe together with all appurtenances as shown and detailed on the Drawings and specified herein.

1.02 RELATED WORK

- A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 02610 - Water Pipe and Fittings.

PART 2 - PRODUCTS

2.01 STEEL PIPE

- A. Steel seamless pipe shall be new material, with a minimum yield of 35,000 psi and a wall thickness as shown below. All joints in the encasement pipe shall be welded.

Table of Minimum Wall Thickness for Steel Encasement Pipe

Nominal Diameter Inches	Minimum Thickness Inches	
	Highway Crossing	Railroad Crossing
14 & Under	0.250	0.219
16	0.375	0.250
18	0.375	0.281
20 & 22	0.375	0.312
24	0.500	0.344
26	0.500	0.375
28	0.500	0.406
30	0.500	0.438
32	0.500	0.469
34 & 36	0.500	0.500
42	0.625	0.625
48	0.625	0.625

- B. Weldings of the steel casing pipe shall be solidly butt-welded with a smooth non-obstructing joint inside and conform to all specifications as required by American

Welding Society (AWS). The casing pipe shall be installed without bends. All welders and welding operators shall be qualified as prescribed by AWS requirements.

- C. The material shall conform to the chemical and mechanical requirements of the latest revision of ASTM A139 "Electric-Fusion (ARC) - Welded Steel Pipe (NPS 4 and Over)," unless otherwise stated herein.
- D. Grade B steel shall be used. The steel shall be new and previously unused.
- E. Hydrostatic testing shall not be necessary.
- F. The wall thickness at any point shall be within 0.025 inches of the nominal metal thickness specified.
- G. A protective coating shall be applied to each length of pipe. Following an SSPC SP-7 "Brush-Off Blast Cleaning" surface preparation, 3 (dry) mils of Tnemec-Primer 10-99 (red), of Porter International Primer 260FD (red), or of an approved equal shall be applied in the manner recommended by the respective paint manufacturer.
- H. Each length of pipe shall be legibly marked, stating: manufacturer, diameter, wall thickness and primer.
- I. Precaution shall be taken to avoid deforming the pipe and damaging the primer during shipping.
- J. Pipe shall be within the following tolerances:

Straightness        1/4 -- 3/8  
Roundness 1 Percent  
Thickness 12 1/2 Percent

### PART 3 - EXECUTION

#### 3.01 INSTALLATION

- A. Where shown on the Drawings, the Contractor shall install encasement pipe. Two methods of installation are designated, the open-cut method and the boring method.
  - 1. The open-cut method shall consist of placing the encasement pipe in the excavated trench, then installing the carrier pipe inside the encasement pipe. Excavation, bedding and backfilling shall be in accordance with Section 02225.

2. The boring method consists of pushing or jacking the encasement pipe into the hole as an auger cuts out the material or after the auger has completed the bore. The encasement pipe shall be installed in a manner that will not disrupt traffic.
- B. The carrier pipe shall be ductile iron, polyvinyl chloride, or polyethylene pipe as designated on the Drawings. The carrier pipe will not be permitted to rest on bells or couplings.
- C. Pipeline Spacers
1. Carrier pipes installed inside encasement pipes shall be centered throughout the length of encasement pipe. Centering shall be accomplished by the installation of polyethylene pipeline spacers attached to the carrier pipe in such manner as to prevent the dislodgement of the spacers as the carrier pipe is pulled or pushed through the encasement pipe. Spacers shall be of such dimensions to provide: full supportive load capacity of the pipe and contents; of such thickness to allow installation and/or removal of the pipe; and to allow no greater than 1/2 inch movement of the carrier pipe within the cover pipe after carrier pipe is installed.
2. Spacers shall be located immediately behind each bell and at a maximum spacing distance as follows:

Carrier Pipe Diameter (inches)	Maximum Spacing (feet)
2 - 2-1/2	4
3 - 8	7
10 - 26	10
28	9
30	8
32	7
34	6
36 - 38	5.5
40 - 44	5
46 - 48	4

The materials and spacing to be used shall be accepted by the Engineer prior to installation. The polyethylene pipeline spacers shall be manufactured by Pipeline Seal and Insulator, Inc. (PSI), Raci Spacers, Inc., or equal. Installation shall be in accordance with manufacture's recommendations.

3.02

SEALING

After installation of the carrier pipe within the encasement pipe, the ends of the casing shall be sealed in the following manner. The space between the casing and the carrier pipe shall be filled with a waterproofing bitumastic compound until a tight seal is obtained. An Ethylene Propylene Diene Monomer (EPDM) elastomeric membrane shall

be wrapped around the end of the encasement pipe in three layers and securely bound to the casing and the carrier pipe barrel with stainless steel bands. The EPDM membrane shall be 0.045 inches thick and have a tear resistance of 125 pounds/inches. The membrane shall be manufactured by Carlisle Tire & Rubber Company, Firestone Industrial Products Company, or approved equal.

### 3.03 DAMAGE

The cost of repairing damage which is caused by the boring operation to the highway or railroad shall be borne by the Contractor.

END OF SECTION 02630

## SECTION 02640 - WATER VALVES AND GATES

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install valves together with all appurtenances as shown and detailed on the Drawings and specified herein.

#### 1.02 RELATED WORK

- A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 02610 - Water Pipe and Fittings.
- C. Section 02646 - Fire Hydrants.

#### 1.03 SUBMITTALS

- A. Complete shop drawings of all valves and appurtenances shall be submitted to the Engineer in accordance with the requirements of Section 01300.
- B. The manufacturer shall furnish the Engineer two (2) copies of an affidavit stating that the valve and all materials used in its construction conform to the applicable requirements of the latest revision of the applicable AWWA Standard, and that all tests specified therein have been performed and that all test requirements have been met.
- C. The Engineer shall be furnished two (2) copies of affidavit that the "Valve Protection Testing" has been done and that all test requirements have been met.
- D. The Engineer shall be furnished with two (2) copies of affidavit that inspection, testing and rejection are in accordance with the latest revision of the applicable AWWA Standard.

### PART 2 - PRODUCTS

#### 2.01 GATE VALVES

- A. All gate valves shall be of the resilient seat type in accordance with the latest revision of AWWA C509 Standard. The valve body, bonnet and gate castings shall be ductile iron or cast iron. The valve shall have a non-rising stem (NRS), fully bronze mounted with o-ring seals. Valve body and bonnet, inside and out, shall be fully coated with



fusion bonded epoxy coating in accordance with AWWA C550 Standard. Valves shall have a rated working pressure of 200 psi.

- B. Gate valves for buried service shall be furnished with mechanical joint end connections, unless otherwise shown on the Drawings or specified herein. The end connection shall be suitable to receive ductile iron or PVC pipe.
- C. Gate valves for meter pits, pump stations, or other installations as shown on the Drawings shall be furnished with flanged joint and connections, outside screw and yoke and handwheel operator. The gate valve shall have the direction of opening cast on the rim of the handwheel and provided with chain and lock.
- D. All gate valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working pressure cast on the body of the valve.
- E. Buried service gate valves shall be provided with a 2-inch square operating nut and shall be opened by turning to the left (counterclockwise).
- F. Buried service gate valves shall be installed in a vertical position with valve box as detailed on the Drawings. They shall be set vertically and properly adjusted so that the cover will be in the same plane as the finished surface of the ground or street.
- G. Valves shall be those manufactured by Mueller, M & H Valve Company, American, or approved equal.

## 2.02 TAPPING VALVES

- A. All tapping valves shall be of the resilient seat, gate valve type in accordance with the latest revision of AWWA C509 Standard. The valve body, bonnet and gate castings shall be cast iron. The valve shall have a non-rising stem (NRS), fully bronze mounted with o-ring seals. Valve body and bonnet, inside and out, shall be fully coated with fusion bonded epoxy coating in accordance with AWWA C550 Standard. Valves shall have a rated working pressure of 200 psi.
- B. Valve shall be furnished with ANSI B16.1 flanged end with centering ring on tapping side. Outlet side shall be mechanical joint. All valves through 12 inches shall mate all sleeves through 12-inch outlet regardless of manufacturer.
- C. All cast iron shall conform to ASTM A126, Class B. Castings shall be clean and sound without defects that will impair their service. No plugging or welding of such defects will be allowed. Bolts shall be electric-zinc plated steel with hex heads and hex nuts in accordance with ASTM A-307 and A-563.
- D. Stems shall be manganese bronze having a minimum tensile strength of 60,000 psi, a

minimum yield of 20,000 psi. NRS stem collars shall be cast integral with them and machined to size. The housing for the valve stem collar shall be machined. All thrust bearing shall be incorporated as required, to optimize operating torques. NRS valves shall be furnished with two (2) o-ring stem seals located above the thrust collar and one (1) below. O-rings shall be set in grooves in the stem. The o-ring grooves shall not be less than the root diameter of the stem threads.

Gates for valve shall be totally encapsulated in rubber, be field replaceable, and provide a dual seal on the mating body seat. Valve shall be capable of installation in any position with rated sealing in both directions. Rubber sets of specially compounded SBR materials shall be utilized and be capable of sealing even under conditions of normal wear. The valve body shall have integral guide engaging lugs in the gate in a tongue-and-groove manner, supporting the gate throughout the entire open/close travel.

- E. Tapping valves shall be capable of making taps by using a cutter not less than 1/4-inch smaller than nominal pipe size.
- F. All tapping valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working pressure cast on the body of the valve.
- G. Tapping valves shall be provided with a 2-inch square operating nut and shall be opened by turning to the left counterclockwise).
- H. Tapping valves shall be installed in a vertical position with valve box as detailed on the Drawings. They shall be set vertically and properly adjusted so that the cover will be in the same plane as the finished surface of the ground or street.
- I. Valves shall be those manufactured by Mueller, M & H Valve Company, American or approved equal.

## 2.03 AIR RELEASE AND AIR/VACUUM VALVES

- A. The air release valves shall be the size noted on the Drawings and equal to APCO Series 140C as manufactured by Valve and Primer Corp.
- B. The combination air/vacuum valves shall be the size noted on the Drawings and equal to APCO Series 140C as manufactured by Valve and Primer Corp.
- C. The air and vacuum valves for vertical turbine pumps shall be the size noted on the Drawings and equal to APCO Series 140DAT as manufactured by Valve and Primer Corp.
- D. The valves shall be in accordance with ANSI/AWWA C512.

- E. The valves shall be of the type that automatically exhausts large quantities of air during the filling of a system and allows air to re-enter during draining or when a vacuum occurs. The overall height less back wash accessories shall not exceed 21 inches. Valves shall be constructed of cast iron body and cover, stainless trim and float with a Buna-N seat for positive seating.
- F. The baffle shall be ductile iron and shall protect float from direct impact of air and water. The seat shall slip fit into the baffle or cover and lock in place without any distortion. The float and baffle assembly shall be shrouded with a water diffuser. The float shall be stainless steel center guided for positive seating and be rated at 1,000 psi non-shock service.
- G. The discharge orifice shall be fitted with a double-acting throttle device to regulate and restrict air venting.
- H. All parts of the valves and the operating mechanisms shall be made of non-corrodable materials.

## 2.04 VALVE BOXES

- A. Each buried stop and valve shall be provided with a suitable valve box. Boxes shall be of the adjustable, telescoping, heavy-pattern type with the lower part of cast iron and the upper part of steel or cast iron. They shall be so designed and constructed as to prevent the direct transmission of traffic loads to the pipe or valve.
- B. The upper or sliding section of the box shall be provided with a flange having sufficient bearing area to prevent undue settlement. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve and rest on the valve bonnet.
- C. The boxes shall be adjustable through at least 6 inches vertically without reduction of the lap between sections to less than 4 inches.
- D. The inside diameter of boxes for valves shall be at least 4-1/2 inches, and the lengths shall be as necessary for the depths of the valves or stops with which the boxes are to be used.
- E. Covers for valves shall be close fitting and substantially dirt-tight.
- F. The top of the cover shall be flush with the top of the box rim. An arrow and the word OPEN to indicate the direction of turning to open the valve shall be cast in the top of the valve covers.

## 2.05 TAPPING SLEEVES

- A. Tapping sleeves shall be cast iron and capable of containing pressure within the full

volume of the sleeve. Sleeve shall be mechanical joint suitable for use with ductile iron or PVC pipe.

- B. Sleeve shall be rated at 200 psi working pressure through 12-inch size and 150 psi for sleeves 14-inch through 24-inch.
- C. Flanged throat section of mechanical joint sleeves through 12-inch size shall conform to MSS SP60 Standard. For throat sections larger than 12 inches, flanged section shall mate valves of same manufacture as sleeves.
- D. All cast iron shall conform to ASTM A126, Class B. Castings shall be cleaned and sound without defects that will impair their service. No plugging or welding of such defects will be allowed. Bolts, nuts, and gaskets shall be in accordance with mechanical joint requirements of AWWA C111.
- E. Tapping sleeves shall be capable of withstanding their rated pressure without leakage past the side gaskets and end gaskets of the sleeve. Sleeves shall be supplied with split end gaskets and two-piece glands. Side flange rubber gaskets shall butt against the rubber end gaskets to make a watertight seal. Side and end bolts shall be of a T-head design. The throat flange shall be designed to center the tapping valve to the sleeve. Tapping sleeve shall be equipped with a test plug.
- F. Tapping sleeves shall be fully coated with fusion bonded epoxy coating in accordance with AWWA C550 Standard.
- G. Sleeves shall be marked with the name of the manufacturer and size (run x branch).
- H. Tapping sleeve shall be manufactured by Mueller, M & H Valve Company, or approved equal.

## 2.06 COUPLING ADAPTER

- A. The pipe couplings shall be of a gasketed, sleeve-type with diameter to properly fit the pipe. Each coupling shall consist of one (1) steel middle ring, of thickness and length specified, two (2) steel followers, two (2) rubber-compounded wedge section gaskets and sufficient track-head steel bolts to properly compress the gaskets. Field joints shall be made with this type of coupling. The middle ring and followers of the coupling shall be true circular sections free from irregularities, flat spots, or surface defects. They shall be formed from mill sections with the follower-ring section of such design as to provide confinement of the gasket. After welding, they shall be tested by cold expanding a minimum of 1 percent beyond the yield point. The coupling bolts shall be of the elliptic-neck, track-head design with rolled threads. The manufacturer shall supply information as to the recommended torque to which the bolts shall be tightened. All bolt holes in the followers shall be oval for greater strength. The gaskets of the coupling shall be composed of a crude or synthetic rubber base compounded with other products to produce a material which will not deteriorate

from age, from heat, or exposure to air under normal storage conditions. It shall also possess the quality of resilience and ability to resist cold flow of the material so that the joint will remain sealed and tight indefinitely when subjected to shock, vibration, pulsation and temperature or other adjustments of the pipe line. The couplings shall be assembled on the job in a manner to insure permanently tight joints under all reasonable conditions of expansion, contraction, shifting and settlement, unavoidable variations in trench gradient, etc.

- B. Nuts and bolts shall be in accordance with AWWA C111.
- C. Couplings shall be shop primed and field painted in accordance with Division 9 (or one coat of coal tar epoxy if not specified in Division 9).
- D. Compression couplings shall be equal to Style 38 manufactured by Dresser. Flanged couplings shall have flanges in accordance with AWWA C207 and be equal to Style 128 manufactured by Dresser.

## 2.07 FIBERGLASS LINE MARKER

### A. General:

1. Design: The continuous fiberglass reinforced composite line marker (CRM-375) shall be a single piece marker capable of simple, permanent installation by one person using a manual driving tool. The CRM-375 upon proper installation shall resist displacement from wind and vehicle impact forces. The CRM-375 shall be of a constant flat "T" cross-sectional design with reinforcing support ribs incorporated longitudinally along each edge to provide sheeting protection and structural rigidity. The bottom end of the marker shall be pointed for ease of ground penetration.
2. Material: The CRM-375 marker shall be constructed of a durable, UV resistant, continuous glass fiber and marble reinforced, thermosetting composite material which is resistant to impact, ozone, and hydrocarbons within a service temperature range of -40<sup>0</sup> F to +140<sup>0</sup> F.
3. Workmanship: The CRM-375 marker shall exhibit good workmanship and shall be free of burns, discoloration, cracks, bulges or other objectionable marks which would adversely affect the marker's performance or serviceability.
4. Marking: Each CRM-375 shall be permanently marked "Water Valve Below". The letters shall be a minimum of 2 inches in height. A black line shall be stamped horizontally across the front of the marker near the bottom to indicate proper burial depth as shown in the standard detail.

### B. Physical and Mechanical Requirements:

1. Dimensions: The CRM-375 marker shall conform to the shape and overall dimensions shown in the standard detail.

2. Mechanical Properties: The CRM-375 shall have the minimum mechanical properties as follows:

Property	ASTM Test Method	Minimum Value
Ultimate Tensile Strength	D-638	50,000 psi
Ultimate Compressive Strength	D-638	45,000 psi
Specific Gravity	D-792	1.7
Weight % Glass Reinforcement	D-2584	50%
Barcol Hardness	D-2583	47

3. Color Fastness: The CRM-375 shall be pigmented throughout the entire cross-section so as to produce a uniform color which is an integral part of the material. Ultraviolet resistant materials shall be incorporated in the construction to inhibit fading or cracking of the delineator upon field exposure.
4. Vehicle Impact Resistance: The Carsonite CRM-375 marker shall be capable of self-erecting and remain functional after being subjected to a series of ten head on impacts by a typical passenger sedan at 35 miles per hour. The CRM-375 shall retain a minimum of 60 percent of its sheeting.

C. Reflectors:

1. The reflector shall be of impact resistant, pressure sensitive retro-reflective sheeting which shall be subject to approval by the Engineer. The sheeting shall be of appropriate color to meet MUTCD requirements.
2. Mounting: The retro-reflective sheeting shall consist of a minimum of a 3-inch wide strip placed a maximum of 2 inches from the top of the post unless otherwise specified.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. Valves shall be installed as nearly as possible in the positions indicated on the Drawings consistent with conveniences of operating the handwheel or wrench. All valves shall be carefully erected and supported in their respective positions free from all distortion and strain on appurtenances during handling and installation.
- B. All material shall be carefully inspected for defects in workmanship and material, all debris and foreign material cleaned out of valve openings and seats, all operating

mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness.

- C. Valves and other equipment which do not operate easily or are otherwise defective shall be repaired or replaced at the Contractor's expense.
- D. Valves shall not be installed with stems below the horizontal.
- E. Valves shall be set plumb and supported adequately in conformance with the instructions of the manufacturer. Valves mounted on the face of concrete shall be shimmed vertically and grouted in place. Valves in the control piping shall be installed so as to be easily accessible.
- F. Where chain wheels are provided for remote operation of valves, two (2) S-shaped hooks shall be provided for each valve to enable the chains to be hooked so as not to interfere with personnel traffic.
- G. Valves shall be provided with extension stems where required for convenience of operation. Extension stems shall be provided for valves installed underground and elsewhere so that the operating wrench does not exceed 6 feet in length.
- H. A permanent type gasket of uniform thickness shall be provided between flanges of valves and sluice gates and their wall thimble.
- I. Wall thimbles shall be accurately set in the concrete walls so that the gates can be mounted in their respective positions without distortion or strain.
- J. Floorstand operators and stem guides shall be set so that the stems shall run smoothly in true alignment. Guides shall be anchored firmly to the walls. Distances from the centerlines of gates to the operating level or base of floorstand shall be checked by the Contractor and adjusted if necessary to suit the actual conditions of installation.

### 3.02 PAINTING

- A. Valves shall be factory primed and fully coated, inside and out, with fusion bonded epoxy in accordance with the latest revision of AWWA C550 Standard.
- B. Other painting is specified in Division 9.

END OF SECTION 02640

## SECTION 02645 - FIRE HYDRANTS

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

The Contractor shall furnish all labor, materials, and equipment required to complete the work of installing fire hydrants with all appurtenances as shown on the Drawings and specified herein.

### PART 2 - PRODUCTS

#### 2.01 FIRE HYDRANTS

- A. Fire hydrants shall be improved AWWA compression model with 5-1/4 inch hydrant valve, two (2) 2-1/2 inch hose outlets, one (1) 4-1/2 inch pumper nozzle, national standard threads, national standard pentagon operating nut opening left. Fire hydrant shall be equipped with safety flanges designed to prevent barrel breakage when struck by a vehicle, flanged inlets and auxiliary gate valves. Fire hydrants connected to mains 4 inches and larger shall have 6-inch inlets. Fire hydrants shall be Mueller Super Centurion 200 as manufactured by Mueller Company, or equal.
- B. Each fire hydrant shall be installed with an auxiliary gate valve and valve box; valve box cover shall be marked "water" as required.
- C. Inlet cover depth shall be minimum of 30 inches and the minimum dimension from ground to centerline of lowest opening shall be 18 inches. Fire hydrants shall be supported on a poured-in-place concrete thrust block and provided with a drainage pit as indicated on Standard Detail Sheet.
- D. All fire hydrants shall be fully coated, inside and out, with fusion bonded epoxy coating in accordance with AWWA C550 Standard and selected by the Owner.

### PART 3 - EXECUTION

#### 3.01 INSTALLATION

Fire hydrants shall be installed in accordance with the manufacturer's directions and as detailed on the Drawings.

#### 3.02 SPARE PARTS



The Owner shall be furnished with two (2) hydrant barrel wrenches, four (4) spanner wrenches and two (2) operating nut wrenches.

END OF SECTION 02645

## SECTION 02660 - DOMESTIC WATER DISTRIBUTION CONNECTIONS

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install water service piping together with all appurtenances including but not limited to tapping saddle, corporation stop, meter, meter setter, meter box with lid, and service line as shown and detailed on the Drawings and specified herein.

#### 1.02 RELATED WORK

- A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 02610 - Water Pipe and Fittings.
- C. Section 02675 - Disinfection of Potable Water Pipe.

### PART 2 - PRODUCTS

#### 2.01 CORPORATION STOP

- A. Corporation stops to be used with copper pipe (or polyethylene service pipe in copper pipe sizes) with compression type connections, where connected into PVC pipe, shall be the same, except with compression type outlet connections. Stops shall be Mueller Model H15008, Ford F-1000, or equal.
- B. Corporation stops shall be factory tested to 150 psi to be compatible with the pipes in which they are installed.

#### 2.02 WATER METERS

- A. The potable water flow shall be monitored by a disc or piston type positive displacement meter. The flow shall be totalized at the meter body.

B. Characteristics are as follows:

Size:	5/8 inch x 3/4 inch
Flow Range:	3/4 inch - 2 to 30 gallons per minute (GPM)
Maximum Pressure Loss:	5/8 inch - 10.8 psi @ 20 GPM
Register Type:	Straight reading, hermetically sealed, magnetic drive
Registration:	
Capacity:	5/8 inch - 10 gallons or 1 cubic feet 5/8 inch - 1,000,000 gallons or 100,000 cubic feet
Maximum Operation Pressure	
Connection:	150 psi
Main Case:	As shown on the Drawings
Measuring Chamber:	Bronze
Piston:	Bronze
Strainer:	Hard rubber
Trim/Bolts:	Stainless steel or copper
Accuracy:	Stainless steel
Maximum Continuing Flow	Within 1.5 percent of through-put
Rate:	5/8 inch - 10 GPM

- C. Meters shall be Hersey Hotrod, Model # 430 (non integral), 3/4" x 5/8", Translator Register, IB, SG, TRL6, HR, HP. Three feet of wire shall be allowed to connect transmitter to meter. See attached data in Appendix A.

2.03 COPPER METER SETTERS

Meter setters shall be iron meter yoke, riser type, vertical inlet and outlet for copper pipe. They shall be 5/8-inch x 3/4-inch single or tandem Ford VBHH172-7W-3344 with dual check, Mueller 132404-2-67-7 with dual check, or equal. **The dual check valves must be manufactured in the setter in a vertical position so that access to the valve is from the top.** A master lock No. 1, Model #2085 shall be provided with each setter. The key shall match Owner's existing key.

2.04 METER BOX

- A. Meter box shall be a polyvinyl chloride (PVC) or polyethylene (PE) box 18 inches in diameter x 30 inches deep (inside dimensions) and include a cast iron hinged reader lid. The box shall be able to withstand 1,200 pounds compression. The box shall be used for both single and tandem setters.
- B. The meter box shall be equal to the Sonoloc as manufactured by Sonoco Products or MS Meter Box by Mid-States Plastics. The cast iron lid shall be equal to the 18-inch meter box cover, Model 6150 as manufactured by Tyler Pipe and shall read "Water Meter" on top of the lid.

## 2.05 SADDLES

Saddles shall be brass for PVC pipe equal to Ford S70 or Mueller H13000 Series.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. All service connection accessories shall be installed in the locations shown, true to alignment and rigidly supported.
- B. After installation, all service connection accessories shall be tested at least one hour at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the Engineer.
- C. All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of valve openings, etc.; all operating mechanisms operated to check their proper functioning, and all fittings checked for tightness. Accessories which do not operate easily, or are otherwise defective, shall be repaired or replaced at no additional cost to the Owner.

### 3.02 INSPECTION AND TESTING

All service connection accessories shall be tested to demonstrate their conformance with the specified operational capabilities and any deficiencies shall be corrected, device replaced or otherwise made acceptable to the Engineer.

END OF SECTION 02660

## SECTION 02675 - DISINFECTION OF POTABLE WATER PIPE

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

The Contractor shall furnish all labor, material and water necessary to disinfect the potable water pipe as shown on the Drawings and specified herein.

#### 1.02 RELATED WORK

- A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.
- B. Section 02610 - Water Pipe and Fittings.

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION

#### 3.01 DISINFECTION OF WATER MAINS

- A. All water pipe shall be disinfected by the use of chlorine or chlorine compound in such amounts as to produce a concentration of at least 50 ppm and a residual of at least 25 ppm at the end of the twenty-four (24) hours. Pipes shall be thoroughly flushed upon meeting the chlorine residual requirements. Before the pipes are placed in service, samples of the water must be taken by the Contractor and submitted to the State Department of Health for testing. No pipes shall be placed in service until the samples have been approved by the Health Department. The Contractor shall bear all the cost of sampling, testing, and postage. The cost of the disinfection and sampling shall be included in the unit price of the pipe.
- B. Copies of the results of the testing shall be submitted to the Owner and/or Engineer.

END OF SECTION 02675

## SECTION 02731 - GRAVITY SEWERS

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install gravity sewer piping together with all appurtenances as shown and detailed on the Drawings and specified herein.

#### 1.02 RELATED WORK

- A. Section 02225 - Excavating, Backfilling, and Compacting for Utilities.
- B. Section 02630 – Encasement Pipe.

### PART 2 - PRODUCTS

#### 2.01 PIPE AND FITTINGS

- A. Ductile Iron (DI) Pipe:
  - 1. Ductile iron pipe shall conform to ANSI A21.50 (AWWA C150) and ANSI A21.51 (AWWA C151) (latest revision). The pipe shall be designed for an internal working pressure of 150 psi and external loading based on flat bottom trenches without blocks and untamped backfill laying conditions. The pipe shall have a minimum pressure class of 150 psi.
  - 2. Fittings shall be ductile iron fittings in accordance with AWWA C153.
  - 3. Joints shall be push-on type or mechanical joint type conforming to ANSI A21.11 (AWWA C111). Unless specifically required at designated locations by the Drawings, the type of joint used is optional.
    - a. Push-on joints shall have an annular recess in the pipe socket to accommodate a single rubber gasket. Plain ends shall be suitably beveled to permit easy entry into the bell. The gasket and annular recess of the socket shall be so designed and shaped that the gasket is located in place against displacement as the joint is assembled.
    - b. Mechanical joints shall be bolted and of the stuffing box type and shall consist of a bell with exterior flange and interior recess for the sealing gasket, a pipe or fitting plain end, a sealing gasket, a follower gland, tee-head bolts and hexagon nuts.

4. All ductile iron pipe and fittings shall have the manufacturer's outside asphaltic coating and an interior lining of ceramic epoxy (no cement interior lining). The ceramic epoxy lining shall be a high build multi-component amine cured Novalac epoxy polymeric coating/lining equal to the Protecto 401 as manufactured by Vulcan Painters, Inc. of Birmingham, AL. The coating/lining shall have a permeability rating in accordance with Method A of ASTM E-96-66. The surface preparation shall remove all loose laitance, form oils, and other loose materials and include a "brush blast" per SSPC SP-7. The coating and lining shall be applied in accordance with the manufacturer's requirements and have a minimum dry film thickness of 40 mils.
5. Pipe shall be furnished in lengths of 16, 16.5, 18, and 20 feet nominal laying lengths. The weight of any single pipe shall not be less than the tabulated weight by more than 5 percent for pipe 12 inches or smaller in diameter, not by more than 4 percent for pipe larger than 12 inches in diameter.
6. The net weight, class or nominal thickness and sampling period shall be marked on each pipe. The pipe shall also be marked to show that it is ductile iron.
7. Pipe shall be as manufactured by U.S. Pipe & Foundry Company, American Cast Iron Pipe Company, or equal.

B. Polyvinyl Chloride (PVC) Pipe:

1. Solid Wall PVC Pipe (SDR 35):
  - a. PVC pipe and fittings less than 15 inches in diameter shall conform to the requirements of ASTM Standard Specifications for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings, Designation D 3034. Pipe and fittings shall have a minimum cell classification of 12454B or 12454C as defined in ASTM D-1784. All pipe shall have a pipe diameter to wall thickness ratio (SDR) of a maximum of 35.
  - b. PVC pipe and fitting with diameters 18-inch through 27-inch shall conform to the requirements of ASTM D-1784 and ASTM F-679. Pipe and fittings shall have a minimum cell classification of 12454C. The minimum wall thickness shall conform to T-1 as specified in ASTM F-679.
  - c. Joints shall be push-on bell and spigot type using elastomeric ring gaskets conforming to ASTM D 3212 and F 477. The gaskets shall be securely fixed into place in the bells so that they cannot be dislodged during joint assembly. The gaskets shall be of a composition and texture which is resistant to common ingredients of sewage and industrial wastes, including oils and groundwater, and which will endure permanently under the conditions of the proposed use.
  - d. Pipe shall be furnished in lengths of not more than 13 feet. The centerline of each pipe section shall not deviate from a straight line drawn between the centers of the openings at the ends by more than 1/16 inch per foot of length

- e. PVC pipe shall not have a filler content greater than ten percent (10%) by weight relative to PVC resin in the compound.
- f. PVC pipe shall be clearly marked at intervals of 5 feet or less with the manufacturer's name or trademark, nominal pipe size, PVC cell classification, the legend "Type PSM SDR 35 PVC Sewer Pipe" and the designation "ASTM D 3034", or "ASTM F-679". Fittings shall be clearly marked with the manufacturer's name or trademark, nominal size, the material designation "PVC", "PSM" and the designation "ASTM D 3034", or "ASTM F-679".
- g. PVC pipe shall have a minimum pipe stiffness of 46 psi for each diameter when measured at 5 percent vertical ring deflection and tested in accordance with ASTM D-2412.
- h. Five (5) copies of directions for handling and installing the pipe shall be furnished to the Contractor by the manufacturer at the first delivery of pipe to the job. PVC pipe installation shall conform to ASTM D-2321 latest revision.
- i. Pipe shall be as manufactured by H & W Pipe Company, or equal.

### PART 3 - EXECUTION

#### 3.01 PIPE LAYING

- A. All pipe shall be laid with ends abutting and true to the lines and grades indicated on the Drawings. The pipe shall be laid straight between changes in alignment and at uniform grade between changes in grade. Pipe shall be fitted and matched so that when laid in the trench, it will provide a smooth and uniform invert. Supporting of pipe shall be as set out in Section 02225 and in no case shall the supporting of pipe on blocks be permitted.
- B. Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure its being clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fitting shall be discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe and beveled to match the factory bevel for insertion into gasketed joints. Bevel can be made with hand or power tools.
- C. The interior of the pipe, as the work progresses, shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted into the pipe bell so as to exclude earth or other material and precautions taken to prevent flotation of pipe by runoff into trench.



- D. All pipe shall be laid starting at the lowest point and installed so that the spigot ends point in the direction of flow.

### 3.02 JOINTING

All joint surfaces shall be cleaned immediately before jointing the pipe. The bell or groove shall be lubricated in accordance with the manufacturer's recommendation. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and joint assembly shall follow the direction of the manufacturer's of the joint material and of the pipe. The resulting joints shall be watertight and flexible. **No solvent cement joints shall be allowed.**

### 3.03 UTILITY CROSSING CONCRETE ENCASEMENT

- A. At locations shown on the Drawings, required by the Specifications, or as directed by the Engineer, concrete encasement shall be used when the clearance between the proposed sanitary sewer pipe and any existing utility pipe is 18 inches or less. Utility pipe includes underground water, gas, telephone and electrical conduit, storm sewers, and any other pipe as determined by the Engineer.
- B. There are two cases of utility crossing encasement. Case I is applicable when the proposed sanitary sewer line is **below** the existing utility line. Case II is applicable when the proposed sanitary sewer line is laid **above** the utility line. In either case, the concrete shall extend to at least the spring line of each pipe involved.
- C. Concrete shall be Class B (3000 psi) and shall be mixed sufficiently wet to permit it to flow between the pipes to form a continuous bridge. In tamping the concrete, care shall be taken not to disturb the grade or line of either pipe or damage the joints.
- D. Concrete for this Work is not a separate pay item and will be considered incidental to utility pipe installation.

### 3.04 TESTING OF GRAVITY SEWER LINES

- A. After the gravity piping system has been brought to completion, and prior to final inspection, the Contractor shall rod out the entire system by pushing through each individual line in the system, from manhole to manhole, appropriate tools for the removal from the line of any and all dirt, debris, and trash. If necessary during the process of rodding the system, water shall be turned into the system in such quantities to carry off the dirt, debris and trash.
- B. During the final inspection, the Engineer will require all flexible sanitary sewer pipe to be mandrel deflection tested after installation.

1. The mandrel (go/no-go) device shall be cylindrical in shape and constructed with nine (9) evenly spaced arms of prongs. The mandrel dimension shall be 95 percent of the flexible pipe's published ASTM average inside diameter. Allowances for pipe wall thickness tolerances of ovality (from shipment, heat, shipping loads, poor production, etc.) shall not be deducted from the ASTM average inside diameter, but shall be counted as part of the 5 percent allowance. The contact length of the mandrel's arms shall equal or exceed the nominal diameter of the sewer to be inspected. Critical mandrel dimensions shall carry a tolerance " 0.001 inch.
  2. The mandrel inspection shall be conducted no earlier than 30 days after reaching final trench backfill grade provided, in the opinion of the Engineer, sufficient water densification or rainfall has occurred to thoroughly settle the soil throughout the entire trench depth. Short-term (tested 30 days after installation) deflection shall not exceed 5 percent of the pipe's average inside diameter. The mandrel shall be hand pulled by the contractor through all sewer lines. Any sections of the sewer not passing the mandrel test shall be uncovered and the Contractor shall replace and recompact the embedment backfill material to the satisfaction of the Engineer. These repaired sections shall be retested with the go/no-go mandrel until passing.
  3. The Engineer shall be responsible for approving the mandrel. Proving rings may be used to assist in this. Drawings of the mandrel with complete dimensioning shall be furnished by the Contractor to the Engineer for each diameter and type of flexible pipe.
- C. The pipe line shall be made as nearly watertight as practicable, and leakage tests and measurements shall be made. All apparatus and equipment required for testing shall be furnished by the Contractor and the cost shall be included in the unit price bid for pipe and manholes.
1. The Engineer may require the Contractor to smoke test the first section (manhole to manhole) of each size of pipe and type of joint prior to backfilling, to establish and check laying and jointing procedures. The test shall consist of smoke blown into closed-off sections of sewer under pressure and observing any smoke coming from the pipe line indicating the presence of leaks. Other supplementary smoke tests prior to backfilling may be performed by the Contractor at his option; however, any such tests shall not supplant the final tests of the completed work unless such final tests are waived by the Engineer.
  2. Where the groundwater level is more than 1 foot above the top of the pipe at its upper end, the Contractor shall conduct either infiltration tests or low pressure air tests on the completed pipeline.
  3. Where the groundwater level is less than 1 foot above the top of the pipe at its upper end, the Contractor shall conduct either exfiltration tests or low pressure air tests on the completed pipeline.
- D. Low pressure air tests shall be made using equipment specifically designed and manufactured for the purpose of testing sewer lines using low pressure air. The

equipment shall be provided with an air regulator valve or air safety valve so set that the internal pressure in the pipeline cannot exceed 8 psig.

1. The test shall be made on each manhole-to-manhole section of pipeline after placement of the backfill. The Engineer or his designated representative must be present to witness each satisfactory air test before it will be accepted as fulfilling the requirements of these Specifications.
2. Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be tested. Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking.
3. Low pressure air passing through a single control panel, shall be introduced into the sealed line until the internal air pressure reaches 4 psig greater than the maximum pressure exerted by groundwater that may be above the invert of the pipe at the time of test. However, the internal air pressure in the sealed line shall not be allowed to exceed 8 psig. When the maximum pressure exerted by the groundwater is greater than 4 psig, the Contractor shall conduct only an infiltration test.
4. At least two minutes shall be allowed for the air pressure to stabilize in the section under test. After the stabilization period, the low-pressure air supply hose shall be quickly disconnected from control panel. The time required in minutes for the pressure in the section under test to decrease from 3.5 to 2.5 psig (greater than the maximum pressure exerted by groundwater that may be above the invert of the pipe) shall not be less than that shown in the following table:

<b>Pipe in Diameter in Inches</b>	<b>Minutes</b>
4	2.0
6	3.0
8	4.0
10	5.0
12	5.5
15	7.5
18	8.5
21	10.0
24	11.5
30 & larger	13.5

5. When the sewer section to be tested contains more than one size of pipe, the minimum allowable time shall be based on the largest diameter pipe in the section, and shall be the time shown in the table reduced by 0.5 minutes.
6. Reinforced concrete pipe shall be tested in accordance with ASTM C 924 (joint testing shall be in accordance with ASTM C 1103). Test time shall be a function of pipe diameter and the length of installed line to be tested as provided in

ASTM C 924.

- E. Infiltration tests shall be made after underdrains, if present, have been plugged and other groundwater drainage has been stopped such that the groundwater is permitted to return to its normal level insofar as practicable.
  - 1. Upon completion of a section of the pipeline, the line shall be dewatered and a satisfactory test conducted to measure infiltration for at least 24 hours. The amount of infiltration, including manholes, tees and connections, shall not exceed 200 gallons per nominal inch diameter per mile of sewer per 24 hours.
- F. Exfiltration tests which subject the pipeline to an internal pressure, shall be made by plugging the pipe at the lower end and then filling the line and manholes with clean water to a height of 2 feet above the top of the sewer at its upper end. Where conditions between manholes may result in test pressures which would cause leakage at the plugs or stoppers in branches, provisions shall be made by suitable ties, braces and wedges to secure the plugs against leakage resulting from the test pressure.
  - 1. The rate of leakage from the sewers shall be determined by measuring the amount of water required to maintain the level 2 feet above the top of the pipe.
  - 2. Leakage from the sewers under test shall not exceed the requirements for leakage into sewers as hereinbefore specified.
- G. The Contractor shall furnish suitable test plugs, water pumps, and appurtenances, and all labor required to properly conduct the tests. Suitable bulkheads shall be installed, as required, to permit the test of the sewer. The Contractor shall construct weirs or other means of measurements as may be necessary.
- H. Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing the leaks and retesting as the Engineer may require without additional compensation.
- I. If in the judgement of the Engineer, it is impracticable to follow the foregoing procedures for any reason, modifications in the procedures shall be made as required and as acceptable to the Engineer, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

END OF SECTION 02731

## SECTION 02735 - MANHOLES

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to construct manholes for sanitary sewers, including steps, frames and covers, together with all appurtenances as shown and detailed on the Drawings and specified herein. Manhole materials shall be precast concrete.

#### 1.02 RELATED WORK

- A. Section 02731 - Gravity Sewers.

#### 1.03 DEFINITIONS

- A. Standard Manhole: A standard manhole is defined as any manhole that is greater than 4 feet in depth, as measured from the invert of the manhole base at its center to the bottom of the manhole frame.
- B. Shallow Manhole: A shallow manhole is defined as any manhole that is 4 feet or less in depth, as measured in the preceding sentence.

### PART 2 - PRODUCTS

#### 2.01 CONCRETE MANHOLES - GENERAL

- A. Manholes shall conform in shape, size, dimensions, materials, and other respects to the details indicated on the Drawings or bound in the Specifications.
- B. All concrete manholes shall have precast reinforced concrete developed bases. No other type of base will be allowed. Invert channels shall be factory constructed when the base is made. Sloping invert channels shall be constructed whenever the difference between the inlet and outlet elevation is 2 feet or less.
- C. The concrete manhole walls (barrels and cones) shall be precast concrete sections. The top of the cone shall be built of reinforced concrete adjustment rings to permit adjustment of the frame to meet the finished surface. Minimum strength of the concrete for the precast sections shall be 4,000 psi at the time of shipment.
- D. For concrete manholes, the inverts of the developed bases shall conform accurately to the size of the adjoining pipes. Side inverts shall be curved and main inverts (where

direction changes) shall be laid out in smooth curves of the longest possible radius which is tangent, within the manhole, to the centerlines of adjoining pipelines.

- E. For concrete manholes, the cast-iron frames and covers shall be the standard frame and cover as indicated on the Drawings and specified hereinafter in this Section.
- F. Manholes shall be manufactured by Sherman Dixie Concrete Industries, or approved equal.

## 2.02 PRECAST CONCRETE SECTIONS

- A. Precast concrete sections and appurtenances shall conform to the ASTM Standard Specifications for Precast Reinforced Concrete Manhole Sections, Designation C478, latest revision, with the following exceptions and additional requirements.
- B. The base section shall be monolithic for 4-foot diameter manholes. Manholes with diameter of 5 feet or larger shall have base slab.
- C. The wall sections shall be not less than 5 inches thick.
- D. Type II cement shall be used except as otherwise permitted.
- E. Joints between sections shall be made watertight through the use of rubber O-ring gaskets or rubber profile gaskets such as Forsheda 138. Gaskets shall conform to the ASTM Standard C-443, latest revision. Rope mastic or butyl mastic sealant will not be allowed except as noted in Article 2.02 F.
- F. Butyl mastic sealant shall be installed between the cone section, any adjusting sections or rings, and casting.

## 2.03 CONCRETE MANHOLE - FRAMES AND COVERS

- A. The Contractor shall furnish all cast-iron manhole frames and covers conforming to the details shown on the Drawings, or as herein before specified.
- B. The castings shall be of good quality, strong, tough, evengrained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of every nature which would render them unfit for the service for which they are intended. Contact surfaces of covers and frame seats shall be machined to prevent rocking of covers.
- C. All casting shall be thoroughly cleaned and subject to a careful hammer inspection.
- D. Castings shall be at least Class 25 conforming to the ASTM Standard Specifications for Gray Iron Casting, Designation A48, latest revision.

- E. Unless otherwise specified, manhole covers shall be 22-3/4 inches in diameter, weighing not less than 350 pounds per frame and cover. Manhole covers shall set neatly in the rings, with contact edges machined for even bearings and tops flush with ring edge. They shall have sufficient corrugations to prevent slipperiness. The covers shall have two (2) pick holes about 1-1/4 inches wide and 1/2 inches deep with 3/8-inch undercut all around. Covers shall not be perforated. Frames and covers shall be J.R. Hoe and Sons, Mc-350, or approved equal.
- F. All covers shall be marked in large letters "SANITARY SEWER" in the center.

#### 2.04 MANHOLE STEPS (CONCRETE MANHOLES)

Manholes steps shall be the polypropylene plastic type reinforced with a deformed steel rod. The steps shall be of the size and configuration as shown on the Drawings. Steps shall line up over the downstream invert of the manhole. The steps shall be embedded into the manhole wall a minimum of 3-3/8 inches. Steps shall be uniformly spaced at 12-inch to 16-inch intervals.

#### 2.05 PREMOLDED ELASTOMERIC-SEALED JOINTS

All holes for pipe connections in concrete barrels and bases shall have a factory-installed flexible rubber gasket to prevent infiltration. The manhole boots shall conform to the latest revision of ASTM-C973. The boots shall be Contour Seal or Kor-N-Seal made by National Pollution Control Systems, Inc., Nashua, NH; A-Lok Manhole Pipe Seal made by A-Lok Corporation, Trenton, NJ; or an approved equal.

#### 2.06 POLYETHYLENE DIAPHRAGM

- A. Polyethylene diaphragm manhole inserts shall be manufactured from corrosion-proof material suitable for atmospheres containing hydrogen sulfide and diluted sulfuric acid. Diaphragm shall be installed in manholes susceptible to inflow as indicated on the Drawings.
- B. The body of the manhole insert shall be made of high density polyethylene copolymer material meeting ASTM Specification D 1248, Class A, Category 5, Type III (the insert shall have a minimum impact brittleness temperature of -180 degrees Fahrenheit). The thickness shall be uniform 1/8 inches or greater. The manhole insert shall be manufactured to dimensions as shown on the Drawings to allow easy installation within the manhole frame.
- C. Gaskets shall be made of closed cell neoprene. The gasket shall have a pressure sensitive adhesive on one side and shall be placed under the weight bearing surface of the insert by the manufacturer. The adhesive shall be compatible with the manhole insert material so as to form a long lasting bond in either wet or dry conditions.

- D. Lift strap shall be attached to the rising edge of the bowl insert. The lift strap shall be made of 1 inch wide woven polypropylene web and shall be seared on all cut ends to prevent unraveling. The lift strap shall be attached to the manhole insert by means of a stainless steel rivet. Location of the lift strap shall provide easy visual location.
- E. Standard ventilation shall be by means of vent hole on the side wall of the manhole insert approximately 3/4-inches below the lip. The vent hole will allow a maximum release of 10 gallons per 24 hours when the insert is full.
- F. The manhole insert shall be manufactured to fit the manhole frame rim upon which the manhole cover rests. The Contractor is responsible for obtaining specific measurements of each manhole cover to insure a proper fit. The manhole frame shall be cleaned of all dirt, scale and debris before placing the manhole insert on the rim.

## 2.08 CLEANOUTS

Cleanouts shall be extended to finish grade and capped with a clean-out plug in accordance with details and at locations shown on the Drawings. Pipe shall be the same as the gravity sewer line in which the cleanout is located. A 4-inch thick concrete pad, 2 feet 0-inches square, with the valve box lid section, shall be provided around each cleanout.

## 2.09 DROP CONNECTIONS

Drop connections shall be installed in the manhole as shown on the Drawings.

# PART 3 - EXECUTION

## 3.01 FABRICATION - PRECAST SECTIONS

- A. Manhole sections shall contain manhole steps accurately positioned and embedded in the concrete when the section is cast.
- B. Sections shall be cured in an enclosed curing area and shall attain a strength of 4,000 psi prior to shipment.
- C. No more than two (2) lift holes or inserts may be cast or drilled in each section.
- D. Flat slab tops shall have a minimum thickness of 6 inches and reinforcement in accordance with ASTM C478.
- E. The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on the precast sections.



- F. Acceptance of the sections will be on the basis of material tests and inspection of the completed product and test cylinders if requested by the Engineer.
- G. Cones shall be precast sections of similar construction.

### 3.02 SETTING PRECAST MANHOLE SECTIONS

- A. Precast-reinforced concrete manhole sections shall be set so as to be vertical and with sections and steps in true alignment.
- B. Rubber gaskets shall be installed in all manhole joints in accordance with the manufacturer's recommendations.
- C. All holes in sections used for their handling shall be thoroughly plugged with rubber plugs made specifically for this purpose.

### 3.03 ADJUSTING MANHOLE FRAMES AND COVERS TO GRADE

- A. Except where shown on the Drawings, the top of the precast concrete eccentric cone of a standard manhole or the top of the flat slab of a shallow manhole shall terminate 4 inches below existing grade in an unpaved non-traffic area except in a residential yard and 13 inches below existing grade in a paved or unpaved traffic area and in a residential yard. The remainder of the manhole shall be adjusted to the required grade as described hereinafter in paragraphs B and C of this article.
- B. When a manhole is located in an unpaved non-traffic area other than in a residential yard, the frame and cover shall be adjusted to an elevation 3 inches to 5 inches above the existing grade at the center of the cover. If field changes have resulted in the installed manhole invert elevation to be lower than the invert elevation shown on the Drawings, the adjustment to an elevation of 3 inches to 5 inches above existing grade shall be accomplished by the use of precast concrete rings. If field changes have resulted in the completed manhole invert to be greater than the invert shown on the Drawings and the cover higher than 5 inches above existing grade, then the top of the eccentric cone, when used, or the top of the barrel section, when used, shall be trimmed down so that the manhole cover, after installation, is no greater than 5 inches above existing grade at the center of the cover. The area around the adjusted frame and cover shall be filled with the required material, sloping it away from the cover at a grade of 1 inch per foot.
- C. When a manhole is located in a bituminous, concrete, or crushed stone traffic area, or in a residential yard, the frame and cover shall be adjusted to the grade of the surrounding area by the use of precast concrete rings. The adjusted cover shall conform to the elevation and slope of the surrounding area. If field changes have resulted in the installed manhole invert elevation to be so much higher than the invert elevation shown on the Drawings that the top of the eccentric cone, when used, or the top of the flat slab, when used, is less than the thickness of the frame and cover 7

inches from the grade of the surrounding area, then the top of the cone or barrel section shall be trimmed down enough to permit the cover, after installation, to conform to the elevation and slope of the surrounding area. After installation, the inside and outside surfaces of the brick shall receive a waterproofing bitumastic coating.

1. The Contractor shall coordinate elevations of manhole covers in paved streets with the Owner. If resurfacing of the street in which sewers are laid is expected within twelve (12) months, covers shall be set 1-1/2 inches above the existing pavement surface in anticipation of the resurfacing operations.

### 3.04 ADJUSTING SECTIONS

Only clean adjusting sections shall be used. Each adjusting section shall be laid in a bead of butyl mastic sealant and shall be thoroughly bonded.

### 3.05 SETTING MANHOLE FRAMES AND COVERS

- A. Manhole frames shall be set with the tops conforming to the required elevations set forth herein before. Frames shall be set concentric with the top of the concrete and in a full bead of butyl mastic sealant so that the space between the top of the masonry and the bottom flange of the frame shall be completely watertight.
- B. Manhole covers shall be left in place in the frames on completion of other work at the manholes.

### 3.06 VACUUM TESTING OF MANHOLES

- A. Manholes shall be tested after installation with all connections in place.
  1. Lift holes, if any, shall be plugged with an approved, non-shrinkable grout prior to testing.
  2. Drop connections shall be installed prior to testing.
  3. The vacuum test shall include testing of the seal between the cast iron frame and the concrete cone, slab or grade rings.
  4. The manholes shall be backfilled and finished to design grade.
- B. Testing Procedure:
  1. Temporarily plug, with the plugs being braced to prevent the plugs or pipes from being drawn into the manhole, all pipes entering the manhole at least eight inches into the sewer pipe(s). The plug must be inflated at a location past the manhole/pipe gasket.
  2. The test head shall be placed inside the frame at the top of the manhole and inflated, in accordance with the manufacturer's recommendations.
  3. A vacuum of 10 inches of mercury shall be drawn on the manhole. The valve on

- the vacuum line to the manhole shall be shut and the vacuum line disconnected.
- 4. The pressure gauge shall be liquid filled, having a 3.5 inch diameter face with a reading from zero to thirty inches of mercury.
  - 5. The manhole shall be considered to pass the vacuum test if it holds at least 9 inches of mercury for the following time durations:

<u>Time (Minutes)</u>			
<u>Manhole Depth</u>	<u>4' Dia.</u>	<u>5' Dia.</u>	<u>6' Dia.</u>
20 feet or less	1	2	3
20.1 to 30 feet	2	3	4

- 6. If a manhole fails the vacuum test, the manhole shall be repaired with a non-shrinkable grout or other suitable material based on the material of which the manhole is constructed and retested, as stated above.
- 7. All temporary plugs and braces shall be removed after each test.

END OF SECTION 02735

## SECTION 03300 - CAST-IN-PLACE CONCRETE

### PART 1 - GENERAL

#### 1.01 WORK INCLUDED

- A. Formwork.
- B. Reinforcing Steel.
- C. Expansion and Contraction Joints.
- D. Concrete.

#### 1.02 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions.
- B. Section 02222 - Excavation.

#### 1.03 REFERENCES

- A. ACI 350R-89 Environmental Engineering Concrete Structures.
- B. ACI318 - Building Code Requirements for Reinforced Concrete.
- C. ACI347 - Recommended Practice for Concrete Formwork.
- D. CRSI - Manual of Standard Practice.
- E. CRSI - Placing Reinforcing Bars.
- F. ASTM - A-615, A-616, A-617, A-120, A-185, C-31, C-39

#### 1.04 SUBMITTALS

The Contractor shall submit the following data to the Engineer for review:

1. Mix designs for all mixes proposed or required to be used, including all mixes containing admixtures.
2. Certification by the manufacturer that cement meets the Specification contained herein.
3. Shop drawing for reinforcing steel showing bar schedules, location, and splices.
4. Reports on laboratory compression tests of cylinders taken during concrete placement.

## PART 2 - PRODUCTS

### 2.01 CLASSES OF CONCRETE AND USAGE

- A. Structural concrete of the various classes required shall be proportioned to produce the following 28-day compressive strengths:
1. Selection of Proportions for 4,000 psi Concrete:
    - a. 4,000 psi compressive for strength at 28 days.
    - b. Type I cement plus air.
    - c. Maximum water/cement ratio - 0.50.
    - d. Minimum cement content - 564 lbs. (6.0 bags)/cubic yard concrete.
    - e. Nominal maximum size coarse aggregate - No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
    - f. Air content - 5% plus or minus 1% by volume.
    - g. Slump - 4 inches in accordance with ASTM C-143.
  2. Selection of Proportions for 3,000 psi Concrete:
    - a. 3,000 psi compressive strength at 28 days.
    - b. Type I cement plus air.
    - c. Maximum water/cement ratio - 0.56.
    - d. Minimum cement content - 470 lbs. (5.0 bags)/cubic yard concrete.
    - e. Nominal maximum size coarse aggregate - No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
    - f. Air content - 5% plus or minus 1% by volume.
    - g. Slump - 4 inches in accordance with ASTM C-143.
- B. Concrete shall be used as follows:
1. 4,000 psi concrete for all concrete work except as noted below.
  2. 3,000 psi concrete for encasement of sanitary sewers and thrust blocking.
- C. All testing of aggregates and determination of proportions shall be or have been performed by a recognized independent testing laboratory.
- D. Cement for exposed concrete shall have a uniform color classification.
- E. Type I cement conforming to ASTM C-150 shall be used in all concrete.
- F. Coarse aggregate shall be crushed stone having clean, hard, uncoated particles, and shall be free from injurious amount of soft, friable, thin, elongated or laminated pieces. Coarse aggregates shall conform to all requirements of ASTM C-33.

- G. Fine aggregates shall be natural sand having clean, hard, uncoated grains, free from injurious amounts of clay, dust, organic matter or other deleterious substances, and shall conform to ASTM C-33.
- H. Water for concrete shall be clean, fresh, and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances.

## 2.02 ADMIXTURES

- A. An air-entraining admixture shall be used on all concrete and shall be the neutralized vinsol resin type such as Master Builders MB-VR, Euclid Chemical Company AIR-MIX or equal. The admixture shall meet the requirements of ASTM C-260.
- B. Admixtures shall be used in concrete design mixes in the same manner and proportions as in the field so that the effects of the admixtures are included in preliminary test submitted to the Engineer for review prior to the start of construction.

## 2.03 REINFORCEMENT

- A. The minimum yield strength of the reinforcement shall be 60,000 pounds per square inch. Bar reinforcement shall conform to the requirements of ASTM A-615, A-616, or A-617. All bar reinforcement shall be deformed.
- B. Welded wire fabric shall conform to ASTM A-185 and shall be of weight and gauge as indicated on the Drawings.
- C. Reinforcement supports and other accessories in contact with the forms for members which will be exposed to view in the finished work shall be of stainless steel or shall have approved high-density polyethylene tips so that the metal portion shall be at least one-quarter of an inch from the form or surface. Supports for reinforcement, when in contact with the ground or stone fill, shall be precast stone concrete blocks.

## 2.04 FORMS

- A. Forms shall be of suitable material, design, and construction so as to be rigid, tight enough to prevent the passage of mortar, and plane surfaces with a tolerance of 1/16-inch in 4 feet.
- B. For surfaces to be given burlap-rubbed finish, the form surface in contact with the concrete shall be made of heavy gauge metal, new plywood (used plywood which, in the opinion of the Engineer, is substantially equal to new plywood may be used), tempered wood fiberboards with smooth surface, or similar materials. Metal forms or form linings shall have square edges so that the concrete will not have fins or fluting. Forms shall not be pieced out by use of materials different from those in the adjacent form or in such manner as will detract from the uniformity of the finished surface.

- C. For surfaces other than those to be given burlap-rubbed finish, forms shall be made of wood, metal, or other acceptable material. Wooden forms shall be constructed of sound lumber or plywood of suitable dimensions, free from knotholes and loose knots. Plywood shall be reasonable good, as accepted. Metal forms shall be of an acceptable type for the work involved. Edges of forms in contact with concrete shall be flush within 1/16-inch.
- D. Form for walls, columns, or piers shall have removable panels at the bottom for cleaning, inspection, and scrubbing-in of bonding grout. Forms for thin sections (such as walls or columns) of considerable height shall be arranged with suitable openings so that the concrete can be placed in a manner that will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the fresh concrete, unless special spouts are used to place concrete, and so that construction joints can be properly keyed and treated.
- E. Forms for exposed surfaces shall be built with 3/4-inch chamfer strips attached to produce smooth, straight chamfers at all sharp edges of concrete.
- F. Form ties to be encased in concrete shall not be made of through-bolts or common wire, but shall be of a well-established type, so made and installed as to embody the following features:
  - 1. After removal of the protruding part of the tie, there shall be no metal nearer than 1 inch to the face of the concrete.
  - 2. That part of the tie which is to be removed shall be at least 1/2-inch in diameter, or if smaller, it shall be provided with a wood or metal cone 1 inch long placed against the inside of the forms. Cones shall be carefully removed from the concrete after the forms have been stripped.
  - 3. Ties which pass through walls subject to hydrostatic pressure shall be provided with acceptable water stops, such as washers, securely fastened to the ties.

## 2.05 OTHER MATERIALS

- A. Anchorage items shall be of standard manufacture and of type required to engage with the anchors to be installed therein under other sections of the Specifications and shall be subject to approval by the Engineer.
- B. Pre-molded expansion-joint filler strips shall conform to ASTM D-1752 and shall be 3/8-inch thick unless otherwise shown.
- C. Joint sealants shall conform to ANSI 116.1. The following joint sealants are acceptable:

1. Colma by Sika Corporation.
  2. Hornflex by A. C. Horn, Inc.
  3. Sonolastic by Sonneborn Division of Contech, Inc.
- D. Nonshrink grout shall be Embeco 636 grout by Master Builders Company, Euco Firmix grout by the Euclid Chemical Company, or equal. The approved product shall be delivered to the site of the work in the original sealed containers, each bearing the trade name of the material and the name of the manufacturer.

## PART 3 - EXECUTION

### 3.01 FORMING

- A. Forms shall be so constructed and placed that the resulting concrete will be of the shape, lines, dimensions and to the elevations indicated on the Drawings or specified, and exposed concrete will be substantially free from board or grain marks, poorly matched joints, and other irregularities or defects.
- B. Forms shall be sufficiently rigid to prevent displacement or sagging between supports, and so constructed that the concrete will not be damaged by their removal. The Contractor shall be entirely responsible for their adequacy.
- C. All falsework to support structural slabs, beams, girders, etc., shall be designed to safely and adequately support the concrete and forms during placement and curing. The adequacy and safety of the falsework shall be the sole responsibility of the Contractor.
- D. All forms shall be oiled with an acceptable non-staining oil or liquid form coating before reinforcement is placed.
- E. Before form material is reused, all surfaces that are in contact with the concrete shall be thoroughly cleaned, all damaged places repaired, and all projecting nails withdrawn.
- F. Except as otherwise specifically authorized by the Engineer, forms shall not be removed until the concrete has aged for the following number of days-degrees\*:
  1. Beams and slabs: 500 day-degrees.
  2. Walls and vertical surfaces: 100 day-degrees.
  3. \*Day-degree: Total number of days times average daily air temperature at surface of concrete. For example, 5 days at a daily average temperature of 60 degrees F, equals 300 day-degrees.



- G. Shores under beams and slabs shall not be removed until the concrete has attained at least 60 percent of the specified compressive strength and also sufficient strength to support safely its own weight and the construction live loads upon it.

### 3.02 PLACING REINFORCEMENT

- A. Reinforcement shall be bent cold to the dimensions and shapes shown on the Drawings and within tolerances specified in the CRSI Manual of Standard Practice.
- B. Before being placed in position, reinforcement shall be cleaned of loose mill and rust scale, dirt and other coatings that will interfere with development of proper bond.
- C. Reinforcement shall be accurately placed in positions shown on the Drawings and firmly held in place during placement and hardening of concrete by using annealed wire ties. Bars shall be tied at all intersections except where spacing is less than one foot in both directions, then alternate intersections may be tied.
- D. Distance from the forms shall be maintained by means of stays, blocks, ties, hangers or other approved supports. Blocks for holding the reinforcement from contact with the forms shall be precast mortar blocks or approved metal chairs. Layers of bars will be separated by precast mortar blocks or other equally suitable devices; the use of pebbles, pieces of broken stone or brick, metal pipe and other such blocks will not be permitted. If fabric reinforcement is shipped in rolls, it shall be straightened into flat sheets before being placed.
- E. Before any concrete is placed, the Engineer shall have inspected the placing of the steel reinforcement and given permission to deposit the concrete. Concrete placed in violation of this provision will be rejected and thereupon shall be removed.
- F. Unless otherwise specified, reinforcement shall be furnished in the full lengths indicated on the plans. Splicing of bars, except where shown on the plans, will not be permitted without the approval of the Engineer. Where splices are made, they shall be staggered insofar as possible.

### 3.03 TESTING AGGREGATES AND DETERMINING PROPORTIONS

- A. No concrete shall be used in the work until the materials and mix design have been accepted by the Engineer.
- B. The conformity of aggregates to the Specifications hereinbefore given shall be demonstrated and determined by tests per ASTM C-33 made with representative samples of the materials to be used on the work.
- C. The actual proportions of cement, aggregates, admixtures and water necessary to produce concrete conforming to the requirements set forth herein shall be determined

by making test cylinders using representative samples of the materials to be used in the work. A set of four standard 6-inch cylinders shall be made and cured per ASTM C-31. Two shall be tested at 7 days and two at 28 days per ASTM C-39. The slump shall not be less than the greatest slump expected to be used in the work.

- D. Reports on the tests and a statement of the proportions proposed for the concrete mixture, shall be submitted in triplicate to the Engineer for review as soon as possible, but not less than five days prior to the proposed beginning of the concrete work. If the Contractor furnishes in writing, similar, reliable detailed information from an acceptable source, and of date not more than four months prior to the time when concrete will be used on this project, the above requirements for laboratory test may be modified by the Engineer. Such data shall derive from mixtures containing constituents, including the admixtures where used, of the same types and from the same sources as will be used on this project.
- E. The Engineer shall have the right to make check tests of aggregates and concrete, using the same materials, and to order changes as may be necessary to meet the specified requirements.
- F. The Contractor may request permission to add water at the job site; and when the addition of water is permitted by the Engineer, the quantity added shall be the responsibility of the Contractor and in no case shall the total water per bag of cement exceed the ratio set forth herein.
- G. If concrete of the required characteristics is not being produced as the work progresses, the Engineer may order such changes in proportions or materials or both, as may be necessary to secure concrete of the specified quality. The Contractor shall make such changes at his own expense and no extra compensation will be allowed because of such changes.

### 3.04 MIXING

- A. All central-plant and rolling-stock equipment and methods shall conform to the Truck Mixer and Agitator Standards of the Truck Mixer Manufacturers' Bureau of the National Ready Mixed Concrete Association, as well as the ACI Standards for measuring, Mixing and Placing Concrete (ACI 614), and with the ASTM Standard Specification for Ready-Mixed Concrete, Designation C94, insofar as applicable.
- B. Ready-mixed concrete shall be transported to the site in watertight agitator or mixer trucks. The quantity of concrete to be mixed or delivered in any one batch shall not exceed the rated capacity of the mixer or agitator for the respective conditions as stated on the nameplates.
- C. Central-mixed concrete shall be plant-mixed a minimum of 1-1/2 minutes per batch, and then shall be truck-mixed or agitated a minimum of 8 minutes. Agitation shall

begin immediately after the premixed concrete is placed in the truck and shall continue without interruption until discharge. For transit-mixed concrete the major portion of the mixing water shall be added and mixing started immediately after the truck is charged.

- D. The amount of water initially added shall be recorded on the delivery slip for the Engineer's information; no additional water shall be added, either in transit or at the site, except as directed. Mixing (at mixing speed) shall be continued for at least 10 minutes followed by agitation without interruption until discharge. Concrete shall be discharged at the site within 1-1/2 hours after water was first added to the mix, and shall be mixed at least 5 minutes after all water has been added.
- E. Concrete, which has become compacted or segregated during transportation to or in the site of the work, shall be satisfactorily remixed just prior to being placed in the forms.
- F. Partially hardened concrete shall not be deposited in the forms. The re-tempering of concrete which has partially hardened (that is, the remixing of concrete with or without additional cement, aggregate, or water) will not be permitted.

### 3.05 COMPRESSION TESTS

- A. During the progress of the work, at least one (1) set of four (4) compression test cylinders shall be made for each 50 cubic yards of concrete or major fraction thereof, and not less than one such set for each type of concrete for each day's pouring. Cylinders made in the field shall be made and cured in accordance with the ASTM Standard Method of Making and Curing Concrete Test Specimens in the Field, Designation C31, except that wherever possible molds shall be left on the cylinders until they have reached the laboratory. Testing services to satisfy the requirements of ACI shall be paid for by the Contractor at his expense. Testing lab must be approved by the Engineer.
- B. One cylinder of each set shall be broken in accordance with ASTM C-39 at seven (7) days and the other two at twenty-eight (28) days. Two copies of these test results shall be submitted to the Engineer on the same day of the tests.
- C. On evidence of these tests, any concrete that fails to meet the specified strength requirements shall be strengthened or replaced as directed by the Engineer at the Contractor's expense.

### 3.06 METALWORK IN CONCRETE

- A. All trades shall be notified, at the proper time, to install items to be embedded in concrete.

- B. All castings, inserts, conduits, and other metalwork shall be accurately built into or encased in the concrete by the Contractor, as directed, and all necessary precautions shall be taken to prevent the metalwork from being displaced or deformed.
- C. Anchor bolts shall be set by means of substantial templates.

### 3.07 PLACING AND COMPACTING CONCRETE

- A. At least twenty-four (24) hours before the Contractor proposes to make any placement of concrete, he shall notify the Engineer of his intention and planned procedure. Unless otherwise permitted, the work shall be so executed that a section begun on any day shall be completed during daylight of the same day.
- B. No concrete shall be placed on frozen sub grade or in water, or until the sub grade, forms, and preliminary work have been accepted. No concrete shall be placed until all materials to be built into the concrete have been set and have been accepted by the various trades and by the Engineer. All such materials shall be thoroughly clean and free from rust, scale, oil, or any other foreign matter.
- C. Forms and excavations shall be free from water and all dirt, debris, and foreign matter when concrete is placed. Except as otherwise directed, wood forms and embedded wood called for or allowed shall be thorough wetted just prior to placement of concrete.
- D. Concrete placed at air temperatures below 40 degrees shall have a minimum temperature of 50 degrees F. and a maximum of 70 degrees F. when placed.
- E. Concrete shall be transported from the mixer to the place of final deposit as rapidly as practicable and by methods, which will prevent separation of ingredients and avoid re-handling.
- F. Chutes for conveying concrete shall be metal or metal-lined and of such size, design, and slope as to ensure a continuous flow of concrete without segregation. The slope of chutes shall be not flatter than 1 on 2 and all parts of a chute shall have approximately the same slope. The discharge end of the chute shall be provided with a baffle, or, if required, a spout; and the end of the chute or spout shall be kept as close as practicable to, but in no event more than 5 feet above the surface of the fresh concrete. When the operation is intermittent, the chute shall discharge into a hopper.
- G. In thin sections of considerable height (such as walls and columns), concrete shall be placed in such a manner as will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the mass of concrete being placed. To achieve this end, suitable hoppers, spouts with restricted outlets, etc., shall be used as required or permitted unless the forms are provided with suitable openings.

- H. Chutes, hoppers, spouts, etc., shall be thoroughly cleaned before and after each run and the water and debris shall not be discharge inside the form.
- I. For any one placement, concrete shall be deposited continuously in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness within the section, and so as to maintain, until the completion of the unit, an approximately horizontal, plastic surface.
- J. No wooden spreaders shall be left in the concrete.
- K. During and immediately after being deposited, concrete shall be thoroughly compacted by means of suitable tools and methods, such as internal-type mechanical vibrators operating at not less than 5,000 rpm., or other tool spading, to produce the required density and quality of finish. Vibration shall be done only by experienced operators under close supervision and shall be carried on in such a manner and only long enough to produce homogeneity and optimum consolidation without permitting segregation of the solid constituents, "pumping" of air, or other objectionable results. All vibrators shall be supplemented by proper spade puddling approximately 2 to 3 inches away from forms to remove included bubbles and honeycomb. Excessive spading against the forms, causing the deposition of weak mortar at the surface, shall be avoided.
- L. The concrete shall be thoroughly rodded and tamped about embedded materials so as to secure perfect adhesion and prevent leakage. Care shall be taken to prevent the displacement of such materials during concreting.

### 3.08 BONDING CONCRETE AT CONSTRUCTION JOINTS

- A. In order to secure full bond at construction joints, the surface of the concrete previously placed (including vertical, inclined, and substantially horizontal areas) shall be thoroughly cleaned of foreign materials and laitance, if any, and then roughened.
- B. The previously placed concrete at the joint shall be saturated with clean water and kept thoroughly wet overnight, after which all pools shall be removed. After free or glistening water disappears, the concrete shall be given a thorough coating of neat cement mixed to a suitable consistency. The coating shall be 1/8-inch thick on vertical surfaces and 1/4-inch thick on horizontal surfaces, and shall be well scrubbed in by means of stiff bristle brushes wherever possible. New concrete shall be deposited before the neat cement dries.

### 3.09 CURING AND PROTECTION

- A. All concrete, particularly slabs and including finished surfaces, shall be treated immediately after concreting or cement finishing is completed, to provide continuous moist curing for at least seven days, regardless of the adjacent air temperature. Walls

and vertical surfaces may be covered with continuously saturated burlap, or kept moist by other acceptable means. Horizontal surfaces, slab, etc., shall be ponded to a depth of 1/2-inch wherever practicable, or kept continuously wet by the use of lawn sprinklers, a complete covering of continuously saturated burlap, or by other acceptable means.

- B. For at least seven (7) days after having been placed, all concrete shall be so protected that the temperature at the surface will not fall below 45 degrees F.
  - 1. No manure, salt, or other chemicals shall be used for protection.
  - 2. Wherever practicable, finished slabs shall be protected from the direct rays of the sun to prevent checking and crazing.

### 3.10 TRIMMING AND REPAIRS

- A. The Contractor shall use suitable forms, mixture of concrete, and workmanship so that concrete surfaces, when exposed, will require no patching.
- B. As soon as the forms have been stripped and the concrete surfaces exposed, fins and other projections shall be removed, recesses left by the removal of form ties shall be filled, and surface defects which do not impair structural strength shall be repaired.
- C. Defective concrete shall be cut perpendicular to the surface until sound concrete is reached, but less than 1 inch deep. The remaining concrete shall be thoroughly roughened and cleaned. Concrete around the cavity or the form-tie recess shall be thoroughly wetted and promptly painted with a 1/16-inch brush coat of neat cement mixed to the consistency of lead paint. The hole shall then be filled with mortar.
  - 1. Mortar shall be 1:1-1/2 cement and sand mix with sufficient white cement, or fine limestone screenings in lieu of sand, to produce a surface matching the adjoining work. Cement and sand shall be from the same sources as in the parent concrete.
  - 2. For filling form-tie recesses, the mortar shall be mixed slightly damp to the touch (just short of "balling"), hammered into the recess until it is dense and an excess of paste appears on the surface, and then troweled smooth. Mortar in patches shall be applied so that after partial set it can be compressed and rubbed to produce a finish flush and uniform in texture with the adjoining work. All patches shall be warm-moist cured as above specified.
- D. The use of mortar patching as above specified shall be confined to the repair of small defects in relatively green concrete. If substantial repairs are required, the defective portions shall be cut out to sound concrete and the masonry replaced by means of a cement gun, or the masonry shall be taken down and rebuilt, all as the Engineer may decide or direct.

### 3.11 SURFACE FINISH

- A. Fins and irregularities on formed surfaces to receive no other finish shall be smoothed.
- B. The top of concrete on which other concrete or unit masonry will later be placed shall be struck off true at the surface indicated on the Drawings or as permitted by the Engineer, as the concrete is being placed. As soon thereafter as the condition of the concrete permits and before it has hardened appreciably (normally within 2 hours after being deposited), all water, scum, laitance, and loose aggregate shall be removed from the surface by means of wire or bristle brooms in such a manner as to leave the coarse aggregate slightly exposed and the surface clean.
- C. Concrete surfaces shall be finished as follows, except as otherwise required by various sections of the Specifications or shown on the Drawings.
  - 1. Wood-float finish shall be given to all top, substantially horizontal, exposed surfaces.
  - 2. Burlap-rubbed finish shall be given to all interior and exterior surfaces placed against forms, which will be exposed to view on completion of the work. (Finish shall be to one foot below ground and below normal liquid surface elevations).
  - 3. All surfaces shaped without forms and over which liquids will flow shall be given a steel-trowel finish.
  - 4. Concrete surfaces to which roof insulation or roofing are to be applied shall be finished sufficiently smooth to receive the roofing material, as obtained by steel trowel or very smooth wood-float finish.

### 3.12 METHOD OF FINISHING

- A. Broomed Finish:
  - 1. Surfaces to be given broomed finish shall first be given a steel-trowel finish. Immediately after troweling, the surface shall be lightly brushed in one direction with a hair broom to produce a non-slip surface of uniformly good appearance.
- B. Wood-float Finish:
  - 1. Surfaces to be given a wood-float finish shall be finished by tamping with special tools to force aggregates away from the surface, and screening with straight edges to bring the surface to the required line.
  - 2. As soon after the condition of concrete permits and before it has hardened appreciably, all water, film, and foreign material, which may work to the surface, shall be removed. Rough finishing shall be done with straight edges and derbies. Machine floating if used, shall not be started until the surface will support the float adequately without digging in and bringing excess fines to the surface. At

such time, a minimum of machine and hand floating with a wood float shall be employed to bring the finish to a true and uniform surface with no coarse aggregate visible.

3. Under no circumstances will sprinkling with water or dusting with cement be permitted during finishing of the slab.

C. Steel Trowel Finish:

1. Surfaces to be given a steel-trowel finish shall first be given a wood-float finish. This shall be followed by hand troweling with steel trowels to bring the surface to a uniform, smooth, hard, impervious surface free from marks and blemishes. Troweling shall not be started until all water has disappeared from the surface. Over-troweling shall be avoided. Dusting with dry cement or other mixtures or sprinkling with water will not be permitted in finishing.

D. Burlap Rubbed Finish:

1. Immediately after the forms have been stripped and before the concrete has changed in color, all fins and other projections shall be carefully removed by use of a hammer or other suitable means, and imperfections shall be repaired as hereinbefore specified under "Trimming and Repairs". While the surface is still damp, a thin coat of cement slurry of medium consistency shall be applied by means of bristle brushes to provide a bonding coat within pits and minor blemishes in the parent concrete; the coating of large areas of the surface with this slurry shall be avoided.
2. Before the slurry has dried or changed color, a dry (almost crumbly) grout composed of 1 volume of cement to 1-1/2 volumes of masonry sand shall be applied. The sand shall have a fineness modulus of approximately 2.25 and comply with the gradation requirements of the ASTM Standard Specifications for Aggregate for Masonry Mortar, Designation C144-76.
3. The grout shall be uniformly applied by means of damp (neither dripping wet nor dry) pads of burlap of convenient size (approximately 6 inches square) and shall be allowed to harden for one to two hours, depending on the weather. In hot, dry weather the surface shall be kept damp by means of a fine fog spray during the hardening period.
4. When the grout has hardened sufficiently, but before it becomes so hard as to be difficult to remove, excess grout shall be scraped from the surface of the parent concrete by the edge of a steel trowel, without removing the grout from the imperfections. Thereafter, the surface shall be allowed to dry thoroughly and then be rubbed vigorously with burlap to remove all dried grout so that no visible film remains on the surface after the rubbing. The entire cleaning operation for any area shall be so planned that sufficient time is allowed for the grout to dry and be rubbed after it has been cut with the trowel.
5. On the day following the grouting and burlap rubbing, the concrete surface shall again be rubbed clean with a dry burlap to remove inadvertent dust. If any built-



up film remains on the parent surface, it shall be removed by being rubbed with a fine abrasive stone without breaking through the surface film of the original concrete. Such rubbing shall be light and sufficient only to remove excess material without working up a lather of mortar or changing the texture of the concrete. Following the final rubbing with burlap or abrasive stone, the surface shall be thoroughly washed with stiff bristle brushes (worked only along parallel lines) to remove extraneous materials from the surface. The surface shall then be sprayed with a fine fog spray to maintain a continually damp condition for at least three (3) days after application of the grout.

6. When the burlap-rubbed finish has been completed, the concrete surface shall be smooth, free from discolorations and stains, and of uniformly good appearance.

### 3.13 HOT WEATHER CONDITIONS

Placing of concrete under conditions of high temperature, low humidity or wind shall be done in accordance with the American Concrete Institute "Hot Weather Conditions" (latest edition).

### 3.14 COLD WEATHER CONDITIONS

Cold weather concreting procedures precautions shall conform with American Concrete Institute "Cold Weather Concreting" (latest edition).

END OF SECTION 03300

# **APPENDIX A**

## **INDEX**

1. HERSEY HOT ROD TRANSMITTER (RESIDENTIAL)

# Integral HOT ROD™

**Mueller** SYSTEMS

## Features

**APPLICATIONS:** The Integral HOT ROD™ is a high performance, transmitter designed for mobile AMR. It is compatible with all current 5/8" through 1" Hersey Positive Displacement and 3/4" through 2" MVR and RFM Meters utilizing the Translator® Positional Encoder Register. The primary function of the Integral HOT ROD module is to transmit an encoded serial number, water consumption, leak detection information and status data via radio frequency. When combined with the STREET MACHINE™ Mobile Receiver and EZ Reader™ Software, it provides the basis for high speed, high performance meter reading.

**INSTALLATION:** Integral HOT ROD modules are available in two options; metal and standard variant. The metal variant is a high power version for installation in a metal box and the standard version is a low power version for installation in a plastic meter box. Each meter is shipped with the Integral HOT ROD preprogrammed and permanently attached to simplify installation, eliminate exposed wires and mounting hardware in all installation environments. The HOT ROD is also available with exposed wire lengths appropriate for installation on Hersey meters not listed above.

**PERFORMANCE:** The Integral HOT ROD module utilizes the 902MHz to 928MHz ISM band which are FCC license exempt frequencies and translates to lower initial start up costs. The Integral HOT ROD module transmits or "bubbles up" every 2 seconds on multiple frequencies without the need of a "wake up call" insuring a continuous information stream for absolute data collection. Each transmission lasts only 2.5 milliseconds. That equates to almost 16 million opportunities per year to read each Integral HOT ROD module and unparalleled performance.

**CONFORMANCE TO STANDARDS:** FCC compliance: Part 15 certified. The Integral HOT ROD complies with Standard C707 for Encoded Remote Reading Systems. No FCC License is required for operation.

**CONSTRUCTION:** The Integral HOT ROD module consists of a compact printed circuit board which is encapsulated to provide complete protection against shock and water intrusion. The enclosure is made of UV stable, high density thermoplastic and is completely waterproof. All modules are integrally mounted to the meter for all installations. One C size lithium battery provides plenty of power for reading the register and sending RF data. The battery is sealed within the module and is not replaceable. There are no customer serviceable parts inside the HOT ROD.

**INSTANT DATA LOGGING ALARMS:** Along with the standard meter reading the HOT ROD modules also transmit any instant data logging alarms for a specific account identifying a potential problem or issue with that account. The instant data logging alarms can be viewed on the Mapping screen of EZ Mobile™ and trigger the meter reader to stop and take action; such as leaving a door hanger or downloading the hourly consumption data for further investigation of the issue. The types of Instant Data Logging Alarms that can be communicated along with the meter reading are: small and continuous leak, reverse flow, no flow, and register disconnect. These instant data logging alarms can also be viewed with the Extended Data report from EZ Mobile.

**HOURLY CONSUMPTION DATA:** The HOT ROD modules come standard with the ability to log and store up to 170 days of hourly consumption data that can then be downloaded by a meter reader/technician using the same Street Machine™ Mobile Receiver that is used to read meters. The meter reader would just start up EZ Profiler™ Software and swipe a magnet over the top of the Hot Rod module to begin the process. The monthly, daily or hourly consumption profiling data can then be displayed on a bar graph that can be supplied to the customer to help justify the amount being charged and resolve high water bill disputes/complaints. This information can also be used to monitor and address water conservation initiatives, such as, odd-even watering restrictions.



Integral HOT ROD™

## Materials and Specifications

RADIO FREQUENCY	Operates on 902 to 928MHz
MODEL	Integral HOT ROD™ Standard and Metal Pit Options
POWER SOURCE	C Cell Lithium Battery
TYPICAL RANGE	Up to 1200 feet
TRANSMIT FREQUENCY	902 MHz – 928 MHz
DATA INTEGRITY	Verified with every data message
TEMPERATURE RANGE	Operating Temperature: -40°F to +158°F (-40°C to +70°C) Storage Temperature: -40°F to +158°F (-40°C to +70°C) Humidity: 0% - 100% condensing
OPTIONS	Wired Hot Rod Devices

## Mueller SYSTEMS

# Integral HOT ROD™

Integral HOT ROD™

### FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### WARNING — Changes or Modifications

Any changes or modifications not expressly approved by the party responsible for Compliance could void the user's authority to operate the equipment.

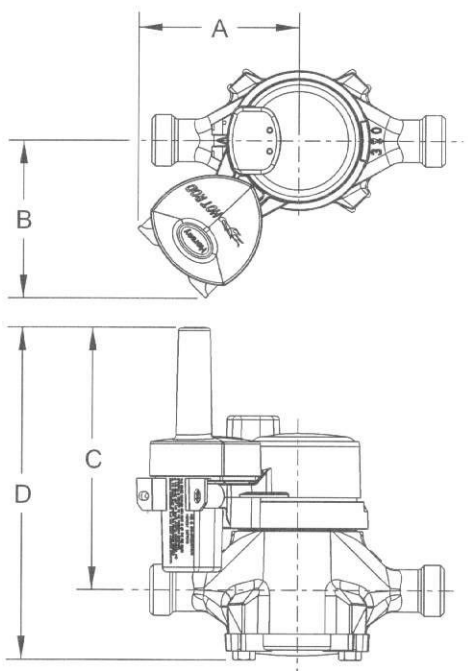
### Caution: Exposure to Radio Frequency Radiation.

The radiated output power of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device shall be used in such that the potential for human contact during normal operation is minimized.

For devices having the following FCC ID: SSDHOTRODMETALV1

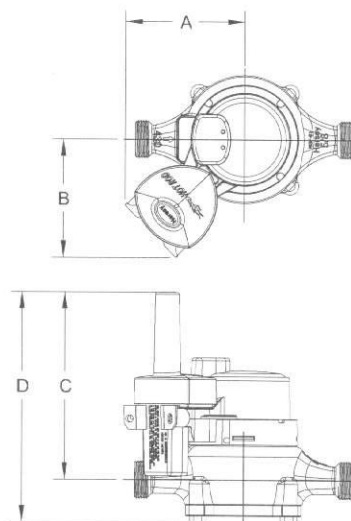
Such devices are authorized for use only in water pit installations using metal enclosures comparable in mechanical construction to the type specified in the filing and is only for below ground use. Professional installation is required. Installation instructions provide appropriate details for the installation of the transmitter in the pits and specify the types of pits and lids that can be used and provide information about any materials necessary to comply with the conditions of the grant.

### MVR Meter



Meter Size	3/4"	1"	1-1/2"	2"
Model	MVR 30	MVR 50	MVR 100	MVR 160
Dimensions				
A	4-1/8"	4-1/8"	4-1/8"	4-1/8"
B	4-1/8"	4-1/8"	4-1/8"	4-1/8"
C	6-5/8"	6-31/32	6-15/16	7-1/64
D	8-5/8"	9-9/32	9-13/32	10-1/4

### PD Meter



Meter Size	5/8"	3/4"	1"
Model	430	442	452
Dimensions			
A	4-1/8"	4-1/8"	4-1/8"
B	4-1/8"	4-1/8"	4-1/8"
C	6-7/16"	7-3/16"	7-5/8"
D	7-7/8"	8-7/8"	9-3/8"

# Standard Sanitary Sewer Bid Item Descriptions

**S BYPASS PUMPING** This item shall include all labor, equipment, and materials needed to complete a bypass pumping and/or hauling operation for diversion of sewage during sanitary sewer construction. Examples of such operations when bypass pumping and/or hauling may be necessary is during force main tie-ins, manhole invert reconstruction, insertion of new manholes into existing mains, or other similar construction. There may be more than one bypass pumping/hauling operation on a project. This item shall be paid for each separate bypass pumping/hauling operation occurrence as called out on the plans or directed by the engineer and actually performed. There will be no separate bid items defined for length, duration, or volume of sewage pumped or hauled in each occurrence. If a bypass pumping/hauling operation is called out on the plans; but, conditions are such that the bypass pumping/hauling operation is not needed or utilized, no payment will be made under this item. The contractor shall draw his own conclusions as to what labor, equipment, and materials may be needed for each bypass pumping/hauling occurrence. The contractor should be prepared to handle the maximum volume of the sewer being bypassed, even during a storm event. This item shall not be paid separately, but shall be considered incidental, when bypass pumping and/or hauling is needed during cast-in-place-pipe (CIPP) and/or point repair operations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA).

**S CIPP LATERAL SERVICE INVESTIGATION** This item shall include all equipment, materials, labor and incidentals necessary to enter the sewer in compliance with all safety/confined space requirements and perform the identification, assessment and pre-measurement of all existing and abandoned laterals for the placement of Cured-In-Place-Pipe lining. This item shall be in payment for all lateral service investigation for all sewer segments to be lined as a part of this contract. This bid item shall include bypass pumping when required. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be LUMP SUM (LS).

**S CIPP LATERAL REINSTATEMENT** This item is to pay for installing a Cured-In-Place-Pipe liner in service laterals and service/mainline connections to stabilize structural defects and construction inadequacies. This bid item shall include all labor, equipment, materials and incidentals necessary to perform the service lateral reinstatement in accordance with the plans and specifications. Work under this item shall include sewer flow control, pre-installation cleaning, sealing connections to existing sewer main, pre- and post- construction CCTV inspection and final testing of the CIPP system. This item shall also include the "top hat" required by the specifications. All CIPP lateral reinstatements shall be paid under this item regardless of the size or length of reinstatement. No separate bid items of varying sizes or length of CIPP lateral reinstatement will be provided in the contract. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be EACH (EA) for each CIPP lateral reinstatement complete and ready for use.

**S CIPP LINER** This bid Item is to pay for rehabilitation of existing sanitary sewers using the Cured-In-Place-Pipe method. This bid item description applies to all CIPP sizes included in the contract.

All CIPP Liner items of all varying sizes shall include all labor, materials, customer notification, testing, necessary permits, ingress and egress procedures, bypass pumping, pre- construction video, sediment and root removal, dewatering, traffic control, erosion and sediment control, excavation pits, removal and replacement of manhole frames and covers as necessary to facilitate the lining work, sealing at manholes and service connections, clearing and grubbing, pipeline cleaning, re-cleaning and video inspection as many times as necessary, debris collection and disposal, root removal, pre- and post-construction video inspection, all digital inspection footage, final report preparation and approval, the cost of potable water from the Owner, required compliance tests, site restoration, site cleanup, sealing of liner at manholes, acceptance testing and all other rehabilitation work and incidentals not included under other pay items necessary to complete the rehabilitation per the plans and specifications. There will be no separate payment for acceptance testing of the lined pipe; but shall be considered incidental to this item. Pay under this item shall be by each size bid in the contract. Pay measurement shall be from center of manhole to center of manhole. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

**S CIPP PROTRUDING LATERAL REMOVAL** This item includes all equipment, materials, labor and incidentals necessary to enter the sewer in compliance with all safety/confined space requirements, remove a sufficient amount of the protruding tap to insure a proper and safe Cured-In-Place-Pipe lining insertion and perform pre-installation CCTV. This bid item shall include bypass pumping when required. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be EACH (EA) for each protruding lateral removed.

**S CONCRETE PIPE ANCHOR** This item shall be constructed on the sewer pipe at the locations shown on the plans in accordance with sanitary sewer specifications and standard drawings. Payment for concrete anchors will be made at the contract unit price each in place complete and ready for use. Each concrete anchor of sewer pipe or force main shall be paid under one bid item per contract regardless of the sizes of carrier pipe being anchored in the contract. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S DIRECTIONAL BORE** Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of force main or gravity sewer under streets, creeks, and etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore whether used as a carrier pipe or an encasement of a separate carrier pipe. This item shall also include pipe anchors at each end of the bore when specified to prevent the creep or contraction of the bore pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall not be size specific and no separate bid items will be established for size variations. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. Any and all directional bores in each contract shall be paid under one directional bore bid item included in the contract regardless of size. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

**S ENCASEMENT CONCRETE** Includes all labor, equipment, excavation, concrete, reinforcing

steel, backfill, restoration, and etc., to construct the concrete encasement of the sewer or force main as shown on the plans, and in accordance with the specifications and standard drawings. Payment under this item shall be in addition to the carrier pipe as paid under separate bid items. Carrier pipe is not included in this bid item. Any and all concrete encasement shall be paid under one bid item included in the contract regardless of the size of the carrier pipe or the volume of concrete or steel reinforcement as specified in the plans and specifications. No separate bid items will be established for size variations. Measurement of pay quantity shall be from end of concrete to end of concrete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**S ENCASEMENT STEEL BORED** This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to bore and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The sizes of encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

*(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.)* Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

**S ENCASEMENT STEEL OPEN CUT** This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to open cut install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The size encasement to be paid under the size ranges specified in the bid items shall be as follows:

- Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
- Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
- Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
- Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
- Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
- Range 6 = All encasement sizes greater than 24 inches

*(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.)* Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

**S FORCE MAIN** This description shall apply to all PVC and ductile iron and polyethylene/plastic pipe bid items of every size and type, except those bid items defined as “Special”. This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, bends, tees, reducers, plugs, and caps), tracing wire with test boxes (if required by specification), polyethylene wrap (when specified), labor, equipment, excavation, bedding, restoration, testing, backfill, and etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. No additional payment will be made for rock excavation. This bid item includes material and placement of flowable fill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. This item shall also include pipe anchors on polyethylene pipe runs as shown on the plans or required by the specifications to prevent the creep or contraction of the pipe. Measurement of quantities under this item shall be through fittings, encasements, and directional bores (only when a separate carrier pipe is specified within the directional bore pipe). No separate payment will be made under pipe items when the directional bore pipe is the carrier pipe. Measurements shall be further defined to be to the center of tie-in where new pipe contacts existing pipe at the center of connecting fittings, to the outside face of vault or structure walls, or to the point of main termination at dead ends. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

**S FORCE MAIN AIR RLS/VAC VLV** This bid item description shall apply to all force main air release/vacuum valve installations of every size except those defined as “Special”. This item shall include the air release/vacuum valve, main to valve connecting line or piping, manhole/vault/structure, access casting or doors, tapping the main, labor, equipment, excavation, proper backfill and restoration required to install the air release/vacuum valve at the location shown on the plans or as directed in accordance with the specifications and standard drawings complete and ready for use. All air release/vacuum valves on a project shall be paid under one bid item regardless of size. No separate pay items will be established for size variations. Only in the case of the uniqueness of a particular air release/vacuum valve would a separate bid item be established. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S FORCE MAIN DIRECTIONAL BORE** Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of sewer or force main under streets, buildings, creeks, and etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore whether used as a carrier pipe or an encasement of a separate carrier pipe. This item shall also include pipe anchors at each end of the bore when specified to prevent the creep or contraction of the bore pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall not be size specific and no separate bid items will be established for size variations. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. Any and all directional bores in each contract shall be paid under one directional bore bid item included in the contract regardless of size. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

**S FORCE MAIN POINT RELOCATE** This item is intended for payment for horizontal and/or vertical relocation of a short length of an existing main at the locations shown on the plans. This bid item is to be used to relocate an existing force main at point locations such as to clear a conflict at a



proposed drainage structure, pipe or any other similar short relocation situation, and where the existing pipe material is to be reused. The contractor shall provide any additional pipe or fitting material needed to complete the work as shown on the plans and specifications. The materials provided shall be of the same type and specification as those that exist. Substitution of alternative materials shall be approved by the engineer in advance on a case by case basis. New polyethylene wrap is to be provided (if wrap exists or is specified in the specifications to be used). If it is necessary that the pipe be disassembled for relay, payment under this item shall also include replacement of joint gaskets as needed. Bedding and backfill shall be provided and performed the same as with any other pipe installation as detailed in the plans and specifications. Payment under this item shall be for each location requiring an existing main to be relocated horizontally or vertically regardless of pipe size or relocation length. No separate pay items will be established for pipe size variations or relocation segment length variations. Force Main Relocate shall not be paid on a linear feet basis; but shall be paid EACH (EA) at each location when complete and placed in service. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

**S FORCE MAIN TAP SLEVE/VALVE RANGE 1 OR 2** This item shall include the specified tapping sleeve, valve, valve box, concrete pad around valve box (when required in specifications or plans), labor, and equipment to install the specified tapping sleeve and valve, complete and ready for use in accordance with the plans and specifications. The size shall be the measured internal diameter of the live pipe to be tapped. The size tapping sleeve and valve to be paid under sizes 1 or 2 shall be as follows:

Range 1 = All live tapped main sizes up to and including 8 inches

Range 2 = All live tapped main sizes greater than 8 inches

Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S FORCE MAIN TIE-IN** This bid description shall be used for all force main tie-in bid items of every size except those defined as "Special". This item includes all labor, equipment, excavation, fittings, sleeves, reducers, couplings, blocking, anchoring, restoration, testing and backfill required to make the force main tie-in as shown on the plans and in accordance with the specifications complete and ready for use. This bid item shall include purge and sanitary disposal of any sewage from any abandoned segments of force main. Pipe for tie-ins shall be paid under separate bid items. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S FORCE MAIN VALVE** This description shall apply to all force main valves of every size required in the plans and specifications, except those bid items defined as "Special". Payment under this description is to be for gate or butterfly force main valves being installed with new force main. This item includes the valve as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, concrete pad around valve box (if required by specification), restoration, testing, and etc., required to install the specified valve at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. If required on plans and/or proposed adjoining DIP is restrained, force main valves shall be restrained. Force main valve restraint shall be considered incidental to the force main valve and adjoining pipe. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be

referenced. This item shall be paid EACH (EA) when complete.

**S FORCE MAIN VALVE BOX ADJUST** Includes all labor, equipment, valve box and valve stem extensions (if required), excavation, backfill, concrete pad around valve box (when specified in specifications or plans), restoration, and etc., to adjust the top of the force main valve box to finished grade complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S LATERAL CLEANOUT** This item shall be for payment for installation of a cleanout in a service lateral line. This item shall include furnishing and installation of a tee, vertical pipe of whatever length required, and threaded cap. The cleanout shall extend from the lateral to final grade elevation. The size of the cleanout shall be equivalent to the size of the lateral. The cleanout materials shall meet the same specification as those for the lateral. The cleanout shall be installed at the locations shown on the plans or as directed by the engineer. Only one pay item shall be established for cleanout installation. No separate pay items shall be established for size or height variances. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S LATERAL LONG SIDE** This bid item description shall apply to all service lateral installations of every size up to and including 6 inch internal diameter, except those lateral bid items defined as "Special". This item includes the specified piping material, main tap, bends, clean outs, labor, equipment, excavation, backfill, testing, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for service lateral installations where the ends of the lateral connection are on opposite sides of the public roadway. The new lateral must cross the centerline of the public roadway to qualify for payment as a long side lateral. The length of the service lateral is not to be specified. Payment under this item shall not be restricted by a minimum or maximum length. The contractor shall draw his own conclusions as to the length of piping that may be needed. Payment under this item shall include boring, jacking, or excavating across the public roadway for placement. Placement of a service lateral across a private residential or commercial entrance alone shall not be reason to make payment under this item. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S LATERAL SHORT SIDE** This bid item description shall apply to all service lateral installations of every size up to and including 6 inch, except those lateral bid items defined as "Special". This item includes the specified piping material, main tap tee, bends, clean outs, labor, equipment, excavation, backfill, testing, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for lateral installations where both ends of the lateral connection are on the same side of the public roadway, or when an existing lateral crossing a public roadway will remain and is being extended, reconnected, or relocated with all work on one side of the public roadway centerline as shown on the plans. The length of the service lateral is not to be specified and shall not be restricted to any minimum or maximum length. Payment shall be made under this item even if the lateral crosses a private residential or commercial entrance; but, not a public roadway. Private or commercial

entrances shall not be considered a public roadway in defining payment under this item. The contractor shall draw his own conclusions as to the length of piping that may be needed. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S LINE MARKER** This item is for payment for furnishing and installing a ground level sewer utility line marker as specified by the utility owner specifications and plans. A line marker may consist of a post or monument of whatever materials specified and shall include markings and/or signage on same as specified by plans or specifications. This item shall include all labor, equipment, and materials needed for complete installation of the marker. This item shall be paid EACH (EA) when complete.

**S MANHOLE** Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole. Payment for manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup in accordance with the specifications and standard drawings. All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE ABANDON/REMOVE** Payment under this item is for the partial removal and/or filling of any sanitary sewer manhole regardless of size or depth that no longer serves any purpose. Payment shall be made regardless of whether the manhole is or is not in conflict with other work. Any manhole requiring partial removal, but not total removal, in order to clear a conflict with other work shall be paid under this item. All manholes partially removed shall be removed to a point at least one foot below final grade, one foot below roadway subgrade, or one foot clear of any other underground infrastructure, whichever is lowest. If partial removal of an abandoned manhole is elected by the contractor, the remaining manhole structure shall be refilled with flowable fill. Payment for disposal of a sanitary sewer manhole will be made under this item only. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE ADJUST TO GRADE** Payment under this item is for the adjustment of sanitary sewer casting elevation on all sizes of existing sanitary manholes. This work shall be performed in accordance with the sanitary sewer specifications. Payment shall be made under this bid item regardless of the amount of adjustment necessary to a sanitary sewer manhole casting or diameter of the manhole. Work under this pay item may be as simple as placing a bed of mortar under a casting; but, shall also be inclusive of installation of adjusting rings, and /or addition, removal, or replacement of barrel sections. The existing casting is to be reused unless a new casting is specified on the plans. New casting, when specified, shall be paid as a separate bid item. Anchoring of the casting shall be incidental to this item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA)

when complete.

**S MANHOLE CASTING STANDARD** Payment under this bid items is for furnishing of a new standard traffic baring casting for sanitary manholes meeting the requirements of the sanitary sewer specifications and standard drawings. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when installed.

**S MANHOLE CASTING WATERTIGHT** Payment under this bid item is for furnishing of a new watertight traffic baring casting for sanitary manholes meeting the requirements of the sanitary sewer specifications and standard drawings. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when installed.

**S MANHOLE RECONSTRUCT INVERT** This bid item is to pay for all labor, equipment, and material for rework of the manhole bench to redirect or eliminate flow, such as when the flow of a pipe or pipes are being removed or redirected. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in elimination or redirect of flow. This item shall also include providing and placement of a rubber seal or boot as required by utility specification, standard drawing or plan. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the specifications, standard drawings, and plans. No payment shall be made under this bid when MANHOLE TAP EXISTING, or MANHOLE TAP EXISTING ADD DROP are being paid at the same location, as this type of work is included in those items. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE TAP EXISTING** This bid item is to pay for all labor, equipment, and material for coring one opening in an existing manhole base, addition of a rubber seal as specified, and rework of the manhole bench to direct the additional pipe flow. The bid item shall be paid for each core opening added to a single manhole. This bid item shall also include any rework of the existing manhole bench due to the elimination of other existing pipes and flow. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in the addition, elimination, or redirect of flow. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the specifications, standard drawings, and plans. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE TAP EXISTING ADD DROP** This bid item is to pay for all labor, equipment, and material for coring one opening in an existing manhole base, addition of a rubber seal as specified, addition of a vertical drop pipe to the outside of the manhole, placement of reinforcing steel and concrete to encase vertical pipe, and rework of the manhole bench to direct the additional pipe flow. The bid item shall be paid for each drop added to a single manhole. This bid item shall also include any rework of the existing manhole bench due to the elimination of other existing pipes and flow. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in the addition, elimination, or redirect of flow. The contractor shall draw his own conclusions as to the effort and

scope of work needed to comply with the specifications, standard drawings, and plans. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE WITH DROP** Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole with drop. Payment for drop manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Drop manholes shall include concrete base, barrel sections, drop materials, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup. All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE WITH LINING** Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole with corrosion resistant lining. Payment for manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, lining, excavation, backfilling, air testing, restoration, and cleanup in accordance with the standard drawings. All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE WITH TRAP** Payment under this item is for the installation of a new manhole with trap. Payment for trap manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Trap manholes shall include concrete base, manhole structure and trap materials, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup. All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S PIPE** This description shall apply to all PVC and ductile iron gravity sewer pipe bid items of every size and type 8 inches internal diameter and larger, except those bid items defined as "Special". This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to,

tap tees and couplings for joining to existing similar or dissimilar pipes), polyethylene wrap (if required by specification), labor, equipment, excavation, bedding, restoration, pressure or vacuum testing, temporary testing materials, video inspection, backfill, and etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. This bid item shall include material and placement of flowable fill under existing and proposed pavement, and wherever specified on the plans or in the specifications. No additional payment will be made for rock excavation. Measurement of quantities under this item shall be through fittings and encasements to a point at the outside face of manhole barrels, or to the point of main termination at dead ends or lamp holes. Carrier pipe placed within an encasement shall be paid under this item and shall include casing spacers and end seals. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

**S PIPE POINT REPAIR** This item is to be used to pay for repair of short lengths of existing sanitary sewer pipe that, through prior video inspection or other means, are known to have pre-existing failure. Pipe Point Repair may be needed in preparation for installation of cured-in-place-pipe (CIPP) lining or other instances where failure is known and repair is prudent. The size of pipe shall not be defined in separate bid items. All diameter sizes of point repair shall be paid under this one item. The materials to be used to make the repair shall be as defined on the plans or in the specifications. This bid item shall include all excavation, pipe materials, joining materials to connect old and new pipe, bedding, and backfill to complete the repair at the locations shown on the plans or as directed by the engineer, complete and ready for use. This bid item shall include bypass pumping when required. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA).

**S PUMP STATION** This item is for payment for installation of sanitary pump stations including above or below ground structure for housing of the pumps. This item shall include all pumps, piping, fittings, valves, electrical components, building materials, concrete, any other appurtenances, labor, equipment, excavation, and backfill, to complete the pump station installation as required by the plans, standard drawings, and specifications, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LUMP SUM (LS) for each when complete.

**S STRUCTURE ABANDON** This item is to be used to pay for abandonment of larger above or below ground sewer structures such as air release/vacuum valve vaults, pump stations, tanks, etc. Payment under this time shall not be limited to size or scope; however structures with connecting pipes of 2 inches or less shall not be paid under this item; but, shall be considered incidental to sewer construction, (i.e., abandonment of standard air release/vacuum valves up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted fill or flowable fill for abandonment of the structure in place and restoration complete. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S STRUCTURE REMOVAL** This item is to be used to pay for removal of larger above or below ground sewer structures such as air release/vacuum valve vaults, pump stations, tanks, and etc. Payment under this time shall not be limited to size or scope; however, structures with connecting pipes of 2 inches or less shall not be paid under this item; but, shall be considered incidental to sewer

construction, (i.e., removal of standard air release/vacuum valves and their structure up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted backfill for removal of the structure and restoration complete. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

# *N O T I C E*

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**DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS**

**NATIONWIDE PERMIT AUTHORIZATION**

**Corps ID No. LRL-2014-586**

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**PROJECT:** Estill County, Item No. 10-0363.10  
KY 89 Reconstruction

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The Section 404 activities for this project have been previously permitted under the authority of the Department of the Army Nationwide Permit No. 14 “Linear Transportation Projects”. In order for this authorization to be valid, the attached conditions must be followed. The contractor shall post a copy of this Nationwide Permit in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the Corps of Engineers. A copy of any request to the Corps of Engineers to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.





**DEPARTMENT OF THE ARMY**  
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE  
CORPS OF ENGINEERS  
EASTERN KENTUCKY REGULATORY OFFICE  
845 SASSAFRAS CREEK ROAD  
SASSAFRAS, KY 41759-8806

18 September 2014

Operations Division  
Regulatory Branch (South)  
ID No. LRL-2014-586-jlb

Mr. Ronald Rigney, II  
Kentucky Transportation Cabinet  
200 Metro Street  
Frankfort, KY 40622

Dear Mr. Rigney:

This is in response to your request for authorization to reconstruct KY 89 that includes multiple stream crossings along tributaries of Sweet Lick Branch, main-stem Sweet Lick Branch and White Oak Creek. The stream crossings include open box culverts, bridge relocation and/or reconstruction, and 15-inch and 24-inch diameter pipe. Additionally, three wetlands would be impacted by the discharge of fill material from nearby road cuts. The project is located at N 37.71238 & W -83.97693° on KY 89 near North Irvine in Estill County, Kentucky. The information supplied by you was reviewed to determine whether a Department of the Army (DA) permit will be required under the provisions of Section 404 of the Clean Water Act.

Your project is considered a discharge of backfill or bedding material for a road crossing. The project is authorized under the provisions of 33 CFR 330 A Nationwide Permit (NWP) No. 14, Linear Transportation Projects, as published in the Federal Register February 21, 2012. Under the provisions of this authorization you must comply with the enclosed Terms and General Conditions for Nationwide Permit No. 14 and the following Special Conditions:

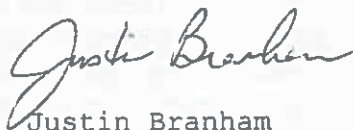
- 1) The project shall be constructed in accordance with designs and plans included in the July 10, 2014, application for KYTC, "Department of the Army Permit - Nationwide Permit #14; Estill County, KYTC Item No. 10-0363.10, KY 89 Reconstruction."
- 2) The permittee must comply with the enclosed Terms and General Conditions, Nationwide Permit #14 Conditions and the issued 401 General Water Quality Certification.

You must also comply with the enclosed General Water Quality Certification (WQC) issued by the Kentucky Division of Water on March 19, 2012. Provided that you comply with the WQC conditions, you may proceed with the project without further contact or verification from us.

This decision is valid until March 18, 2017. The enclosed Compliance Certification should be signed and returned when the project is completed. If your project is not completed by this date or if your project is modified, you must contact us for another permit determination in accordance with the rules and regulations in effect at that time. Note that we also perform periodic inspections to ensure compliance with our permit conditions and applicable Federal laws. A copy of this letter is being sent to the KDOW.

This letter also contains a preliminary jurisdictional determination for your records. If you have any questions, please contact this office by writing to the above address, ATTN: CELRL-OP-FS, or by calling me at 606-642-3208. All correspondence pertaining to this matter should refer to our ID No. LRL-2014-586-jlb.

Sincerely,



Justin Branham  
Project Manager  
Regulatory Branch

Enclosures

ADDRESS FOR COORDINATING AGENCY

Director  
Kentucky Energy and Environment Cabinet  
Division of Water  
200 Fair Oaks, 4<sup>th</sup> Floor  
Frankfort, Kentucky 40601

**Compliance Certification:**

**Permit Number: LRL-2014-586-jlb**

**Name of Permittee: KYTC**

**Date of Issuance: September 18, 2014**

Upon completion of the activity authorized by this permit and any mitigation required by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers-Louisville District  
Eastern Kentucky Regulatory Office  
845 Sassafras Creek Road  
Sassafras, Kentucky 41759

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date

## ATTACHMENT

### PRELIMINARY JURISDICTIONAL DETERMINATION FORM

#### BACKGROUND INFORMATION

- A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):** September 18, 2014
- B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:**  
Ronald Rigney II  
Kentucky Transportation Cabinet  
200 Mero Street  
Frankfort, KY 40622
- C. DISTRICT OFFICE, FILE NAME, AND NUMBER:** LRL-2014-586-j1b  
KYTC Item No. 10-363.10; KY 89 Reconstruction
- D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:**  
Located near North Irvine in Estill County, KY along tributaries of Sweet Lick Branch, main-stem Sweet Lick Branch and White Oak Creek.

#### **(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)**

State: KY County/parish/borough: Estill City: Irvine  
Center coordinates of site (lat/long in degree decimal format):  
Lat. 37.712377° N Long. -83.976932° W

Universal Transverse Mercator:

Name of nearest waterbody: Sweet Lick Branch & White Oak Creek  
Identify (estimate) amount of waters in the review area:

Non-wetland waters: 955 : width 13 (ft) and/or 0.29 acres.

Cowardin Class: R3, R4, R6

Stream Flow: Non-RPW, Seasonal RPW, and RPW

Wetlands: 0.05 acres. Cowardin Class: PSS, PEM

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

#### **E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

- ☒ Office (Desk) Determination. Date: August 1, 2014  
☐ Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

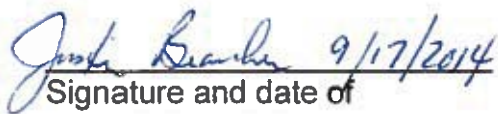
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

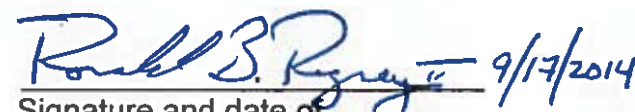
**SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply**

- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
- ☒ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report.
- ☒ Data sheets prepared by the Corps:
- ☐ Corps navigable waters' study:
- ☐ U.S. Geological Survey Hydrologic Atlas:
- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000  
Irvine, KY
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
- ☐ National wetlands inventory map(s). Cite name:
- ☐ State/Local wetland inventory map(s):
- ☐ FEMA/FIRM maps:
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): Google Satellite 10/9/2013  
Or ☒ Other (Name & Date): Included in 6/10/14 submittal
- ☐ Previous determination(s). File no. and date of response letter:
- ☒ Other information (please specify):  
<http://water.usgs.gov/osw/streamstats/kentucky.html>.

**IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.**

  
Signature and date of  
Regulatory Project Manager  
(REQUIRED)

  
Signature and date of  
person requesting preliminary JD  
(REQUIRED, unless obtaining  
the signature is impracticable)



Site number (Receiving Stream)	Upstream Limit of Reach Lat:	Upstream Limit of Reach Lon:	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
<b>Stream 1</b> (Sweet Lick Branch)	37.709356°	-83.975657°	R4	278 LF	Seasonal RPW
<b>Stream 2</b> (White Oak Creek)	37.71025°	-83.97537°	R3	103 LF	RPW
<b>Stream 3</b> (Sweet Lick Branch)	37.71117°	-83.97544°	R3	132 LF	RPW
<b>Stream 4</b> (Sweet Lick Branch)	37.71203°	-83.97605°	R3	31 LF	RPW
<b>Stream 5</b> (Sweet Lick Branch)	37.71291°	-83.97763°	R4	279 LF	Seasonal RPW
<b>Stream 6a</b> (Kentucky River)	37.71668°	-83.98069°	R3	26 LF	RPW
<b>Stream 6b</b> (Kentucky River)	37.71669°	-83.98074°	R3	69 LF	RPW
<b>Stream 7</b> (Sweet Lick Branch)	37.71443°	-83.97950°	R6	37 LF	Non-RPW
<b>Wetland 1</b> (White Oak Creek)	37.716846°	-83.981157°	PSS	0.01 acre	Wetland
<b>Wetland 2</b> (White Oak Creek)	37.716981°	-83.980643°	PEM	0.01 acre	Wetland
<b>Wetland 3</b> (Sweet Lick Branch)	37.714984°	-83.980174°	PEM	0.03 acre	Wetland
<b>TOTAL</b>				<b>955 LF / 0.05</b>	



JLD 1-10-2014



LRL-2014-586; KYTC KY 89 Reconstruction  
Item No. 10-363.00 Project Location & Pre JD Map

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Image USDA Farm Service Agency

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Information on Pre-Construction Notification (PCN) can be found at NWP General Condition No. 31 (Federal Register, Volume 77, No. 34, Tuesday, February 21, 2012, pp 10286-10288).

Mitigation includes activities that avoid, minimize, and compensate for impacts.

**COORDINATING RESOURCE AGENCIES**

Chief, Wetlands Regulatory Section  
U.S. Environmental Protection Agency  
Region IV  
Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, Georgia 30303

Supervisor  
U.S. Fish & Wildlife Service  
JC Watts Federal Building, Room 265  
330 West Broadway  
Frankfort, Kentucky 40601

Supervisor  
401 Water Quality Certification  
Kentucky Division of Water  
200 Fair Oaks Lane, 4<sup>th</sup> Floor  
Frankfort, Kentucky 40601

Commissioner  
Department of Fish and Wildlife Resources  
#1 Game Farm Road  
Frankfort, Kentucky 40601

Executive Director and State Historic Preservation Officer  
Kentucky Heritage Council  
300 Washington Street  
Frankfort, Kentucky 40601

**ADDITIONAL COORDINATING RESOURCE AGENCY  
FOR NWPS 21, 49, AND 50**

Kentucky Department of Natural Resources  
Division of Mine Permits  
#2 Hudson Hollow  
Frankfort, Kentucky 40601

## **KENTUCKY REGIONAL GENERAL CONDITIONS**

These regional conditions are in addition to, but do not supersede, the requirements in the Federal Register (Volume 77 No. 34 of February 21, 2012)

Notifications for all Nationwide Permits (NWP) shall be in accordance with General Condition No. 31.

1. For activities that would result in a loss of Outstanding State or National Resource Waters (OSNRWs), Exceptional Waters (EWs), Coldwater Aquatic Habitat Waters (CAHs) and waters with Designated Critical Habitat (DCH) under the Endangered Species Act for the NWP listed below, a Pre-Construction Notification (PCN) will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWP for impacts to these waters.

NWP 3 (Maintenance)  
NWP 7 (Outfall Structures and Associated Intake Structures)  
NWP 12 (Utility Line Activities)  
NWP 14 (Linear Transportation Projects)  
NWP 29 (Residential Developments)  
NWP 39 (Commercial and Institutional Developments)  
NWP 40 (Agricultural Activities)  
NWP 41 (Reshaping Existing Drainage Ditches)  
NWP 42 (Recreational Facilities)  
NWP 43 (Stormwater Management Facilities)  
NWP 44 (Mining Activities)  
NWP 51 (Land-Based Renewable Energy Generation Facilities)  
NWP 52 (Water-Based Renewable Energy Generation Pilot Projects)

2. In addition to the notification and agency coordination requirements in the NWP, for impacts greater than 0.25 acres in all "waters of the U.S." for the NWP listed below, a PCN will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWP:

NWP 3 (Maintenance)  
NWP 7 (Outfall Structures and Associated Intake Structures)  
NWP 12 (Utility Line Activities)  
NWP 14 (Linear Transportation Projects)  
NWP 29 (Residential Developments)  
NWP 39 (Commercial and Institutional Developments)  
NWP 40 (Agricultural Activities)  
NWP 41 (Reshaping Existing Drainage Ditches)  
NWP 42 (Recreational Facilities)  
NWP 43 (Stormwater Management Facilities)  
NWP 44 (Mining Activities)  
NWP 51 (Land-Based Renewable Energy Generation Facilities)  
NWP 52 (Water-Based Renewable Energy Generation Pilot Projects)

3. For activities in all “waters of the U.S.” for the NWP’s listed below, a PCN will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWP’s:

NWP 21 (Surface Coal Mining Activities)

NWP 27 (Aquatic Habitat Restoration, Establishment & Enhancement Activities)

NWP 49 (Coal Remining Activities)

NWP 50 (Underground Coal Mining Activities)

4. Nationwide Permit No. 14 – Linear Transportation Projects.

- (a) Activities in Section 10 navigable waters will require a PCN to the Corps.
- (b) New public road alignments or realignments are limited to a permanent loss of 500 linear feet of intermittent or perennial stream length at each crossing. Public road crossings with permanent losses greater than 500 linear feet of intermittent or perennial stream associated with new alignments or realignments will be evaluated as an individual permit i.e., a Letter of Permission or as a Standard Individual Permit.
- (c) All linear transportation project crossings resulting in the permanent loss of greater than 300 linear feet of intermittent or perennial stream will require mitigation to compensate for impacts to the “waters of the U.S.” The permanent loss of “waters of the U.S.” includes the linear feet of water that is permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity and not restored to pre-construction contours and elevations after construction. In addition to the notification requirements contained in NWP 14, the permittee must submit a PCN to the district engineer prior to commencing the activity for the permanent loss of greater than 300 feet of intermittent and perennial stream of all “waters of the U.S.” (See General Condition 31 and the definition of “loss of waters of the United States” in the Nationwide Permits for further information.)

**Further information:**

Outstanding State or National Resource Water (OSNRWs), Exceptional Waters (EWs), and Coldwater Aquatic Habitat Waters (CAHs) are waters designated by the Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet. The list can be found at the following link: <http://eppcapp.ky.gov/spwaters/>

Designated Critical Habitat (DCH) under the Endangered Species Act is determined within the Commonwealth of Kentucky by the U.S. Fish and Wildlife Service. The current list of Kentucky’s Threatened, Endangered, and Federal Candidate Species can be found at the following link: <http://www.fws.gov/frankfort/EndangeredSpecies.html>

Terms for Nationwide Permit No. 14  
Linear Transportation Projects

Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 31.) (Sections 10 and 404)

Note: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).





**US Army Corps  
of Engineers**  
Louisville District

# Nationwide Permit Conditions

The following General Conditions must be followed in order for any authorization by NWP to be valid:

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.  
(b) Any safety lights and signals prescribed by the US Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the US.  
(c) The permittee understands and agrees that, if future operations by the US require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the US. No claim shall be made against the US on account of any such removal or alteration.
2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.
3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.
4. Migratory Bird Breeding Areas. Activities in waters of the US that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.
5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.
6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged material must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).
7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.
8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.
9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).
10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.
11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.
12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high

- tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the US during periods of low-flow or no-flow.
13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.
  14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.
  15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.
  16. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, US Forest Service, US Fish and Wildlife Service).
  17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
  18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.  
(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.  
(c) Non-federal permittees must submit a pre-construction notification (PCN) to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the PCN must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete PCN. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from Corps.  
(d) As a result of formal or informal consultation with the USFWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the USFWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the US to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS and NMFS at <http://www.fws.gov> or <http://www.fws.gov/ipac> and <http://www.noaa.gov/fisheries.html>, respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any "take" permits required under the USFWS's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the USFWS to determine if such "take" permits are required for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA is complete.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110(k) of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who,

with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-

managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the US are not authorized by NWPs 7, 12, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the US to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.



(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) - (14) must be approved by the district engineer before the permittee begins work in waters of the US, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the US, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the US are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. **Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has

been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. **Water Quality.** Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. **Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. **Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or USEPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. **Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the US authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the US for the total project cannot exceed 1/3-acre.

29. **Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature: "When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)

(Date)

30. **Compliance Certification.** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(i)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the work and mitigation.



31. Pre-Construction Notification (PCN). (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a PCN as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

- (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
  - (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).
- (b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

- (1) Name, address and telephone numbers of the prospective permittee;
- (2) Location of the proposed project;
- (3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the US expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);
- (4) The PCN must include a delineation of wetlands, other special aquatic sites, and waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the US. The 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;
- (5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of PCN Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP activities that require PCN notification and result in the loss of greater than 1/2-acre of waters of the US, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require PCN notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require PCN notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (USFWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the PCN notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each PCN notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of PCN notifications to expedite agency coordination.

Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

# *N O T I C E*

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## KENTUCKY DIVISION OF WATER

### WATER QUALITY CERTIFICATION

WQC #2015-004-7

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**PROJECT:** Estill County, Item No. 10-0363.10  
KY 89 Reconstruction

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The Kentucky Division of Water has approved the Section 401 activities for this project by issuance of a Water Quality Certification. In order for this authorization to be valid, the attached conditions must be followed. The contractor shall post a copy of this Water Quality Certification in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the appropriate permit agency. A copy of any request to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.



STEVEN L. BESHEAR  
GOVERNOR

LEONARD K. PETERS  
SECRETARY

**ENERGY AND ENVIRONMENT CABINET**

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

DIVISION OF WATER

200 FAIR OAKS LANE, 4TH FLOOR

FRANKFORT, KENTUCKY 40601

[www.kentucky.gov](http://www.kentucky.gov)

January 30, 2015

David Waldner, Director  
Division of Environmental Analysis  
Kentucky Transportation Cabinet  
200 Mero Street  
Frankfort, KY 40622

Re: Water Quality Certification #2015-004-7  
KY 89 Reconstruction  
Item No. 10-0363.10  
USACE ID No.: LRL-2014-586  
AI No.: 85423, Activity ID: APE20140001  
Sweet Lick Branch, White Oak Creek and  
tributaries to Sweet Lick Branch  
Estill County, Kentucky

Dear Mr. Waldner:

Pursuant to Section 401 of the Clean Water Act (CWA), the Commonwealth of Kentucky certifies it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 10, established pursuant to Sections 301, 302, 303, 304, 306, and 307 of the CWA, will not be violated by the above referenced project provided that the U.S. Army Corps of Engineers authorizes the activity under 33 CFR part 330, and the attached conditions are met.

All future correspondence on this project must reference **AI No. 85423**. **The attached document is your official Water Quality Certification; please read it carefully.** If you should have any questions concerning the conditions of this water quality certification, please contact Ms. Joyce Fry of my staff by calling (502) 564-3410.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrea Keatley".

**Andrea Keatley**  
Water Quality Branch Manager  
Kentucky Division of Water

AK:JF  
Attachment

cc: Justin Branham, USACE: Sassafra Office, Louisville District, Justin.L.Branham@usace.army.mil  
Lee Andrews, USFWS: Frankfort, Teresa\_Hyatt@fws.gov  
Mike Hardin, KDFWR: Frankfort, Mike.hardin@ky.com  
Ronald Rigney II, KYTC: Frankfort, RonB.RigneyII@ky.gov  
Malissa McAlister, Kentucky River Authority Basin Coordinator: Lexington, mlmal2@uky.edu

KTC Water Quality Certification

KY 89 - Estill Co  
Facility Requirements  
Permit Number:WQC#2015-004-7  
Activity ID No.: APE20140001

STRC0000000001 (Culverts and fill) 745.8 linear feet intermittent and perennial stream impacts:

Page 1 of 2

Submittal/Action Requirements:

Condition	Condition
S-1	The Kentucky Transportation Cabinet shall submit written notification: Due prior to any construction activity A copy of the in-lieu fee receipt paid to the Kentucky Department of Fish & Wildlife Resources Wetland and Stream Restoration Program must be submitted to the Water Quality Certification Section before the beginning of construction. The in-lieu fee amount is based on the current cost of 155.30 EIUs in the Mountain Bioregion. [Clean Water Act]
S-2	The Kentucky Transportation Cabinet shall notify the Division: Due prior to any construction activity. Notify Joyce Fry at (502) 564-3410 or joyce.fry@ky.gov at least two weeks before the start of construction. [Clean Water Act]
S-3	The Kentucky Department of Transportation shall notify the Division: Due when construction is complete. Notify Joyce Fry at (502) 564-3410 or joyce.fry@ky.gov no later than two weeks post-construction. [Clean Water Act]

Narrative Requirements:

Condition	Condition
T-1	The work approved by this certification shall be limited to: - road reconstruction of KY 89 in Irvine, KY resulting in impacts to: 37 linear ft of ephemeral stream impacts 556.9 linear ft of intermittent stream impacts 188.9 linear ft of perennial stream impacts 0.043 acres of Palustrine Scrub/shrub and Palustrine Emergent Wetland. [Clean Water Act]
T-2	All work performed under this certification shall adhere to the design and specifications set forth in the "Application for Construction Across or Along a Stream and/or Water Quality Certification" received July 11, 2014. [Clean Water Act]
T-3	The applicant is responsible for preventing degradation of waters of the Commonwealth from soil erosion. An erosion and sedimentation control plan must be designed, implemented, and maintained in effective operating condition at all times during construction. [Clean Water Act]

**KTC Water Quality Certification**  
KY 89 - Estill Co  
Facility Requirements  
Permit Number:WQC#2015-004-7  
Activity ID No.: APE20140001

**STRC0000000001 (continued):**

**Narrative Requirements:**

Condition	Condition
T-4	The Division of Water reserves the right to modify or revoke this certification should it be determined that the activity is in noncompliance with any condition set forth in this certification. [Clean Water Act]
T-5	If construction does not commence within one year of the date of this letter, this certification will become void. A letter requesting a renewal should be submitted. [Clean Water Act]
T-6	Other permits from the Division of Water may be required for this activity. If this activity occurs within a floodplain, a Permit to Construct Across or Along a Stream may be required. Please contact Todd Powers (502-564-3410) for more information. If the project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a Kentucky Pollution Discharge Elimination System (KPDES) stormwater permit shall be required from the Surface Water Permits Branch. This permit requires the development of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must include erosion prevention and sediment control measures. Contact: Surface Water Permits Branch (SWPB) Support (502-564-3410 or SWPBSupport@ky.gov). [Clean Water Act]
T-7	Check dams are not allowed within the stream channel. [Clean Water Act]
T-8	Remove all sediment and erosion control measures after re-vegetation has become well-established. [Clean Water Act]





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## **ATTENTION APPLICANT**

**If your project involves one or more of the following activities, you may need more than one permit from the Kentucky Division of Water.**

**\*building in a floodplain      \*road culvert in a stream**  
**\*streambank stabilization      \*stream cleanout**  
**\*utility line crossing a stream**  
**\*construction sites greater than 1 acre**

- **Construction sites greater than 1 acre will require the filing of a Notice of Intent to be covered under the KPDES General Stormwater Permit. This permit requires the creation of an erosion control plan.**  
**Contact: Surface Water Permits Branch (SWPB) Support at (502) 564-3410 or [SWPBsupport@ky.gov](mailto:SWPBsupport@ky.gov)**
- **Projects that involve filling in the floodplain will require a floodplain construction permit from the Water Resources Branch.**  
**Contact: Todd Powers**
- **Projects that involve work IN a stream, such as bank stabilization, road culverts, utility line crossings, and stream alteration will require a floodplain permit and a Water Quality Certification from the Division of Water.**  
**Contact: Andrea Keatley**

**All three contacts listed above can be reached at (502) 564-3410. A complete listing of environmental programs administered by the Kentucky Department for Environmental Protection is available from Pete Goodmann by calling (502) 564-3410.**

## **GENERAL CONDITIONS FOR WATER QUALITY CERTIFICATION**

1. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.
2. All dredged material shall be removed to an upland location and/or graded on adjacent areas (so long as such areas are not regulated wetlands), to obtain original streamside elevations, i.e. overbank flooding shall not be artificially obstructed.
3. In areas not riprapped or other wise stabilized, revegetation of stream banks and riparian zones shall occur concurrently with project progression. At a minimum, revegetation will approximate pre-disturbance conditions.
4. To the maximum extent practicable, all instream work under this certification shall be performed during low flow.
5. Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances where such instream work is unavoidable, then it shall be performed in such a manner and duration as to minimize resuspension of sediments and disturbance to substrates and bank or riparian vegetation.
6. Any fill or riprap including refuse fill, shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If riprap is utilized, it is to be of such weight and size that bank stress or slump conditions will not be created because of its placement.
7. If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when work will be done.
8. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.
9. Should evidence of stream pollution or jurisdictional wetland impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling 800/564-2380.

**KENTUCKY TRANSPORTATION CABINET (1)**

**And**

**\_\_\_\_\_ (2), Construction**

**Kentucky Pollutant Discharge Elimination System**

**Permit KYR10**

**Best Management Practices (BMP) plan**

**Groundwater protection plan**

**For Highway Construction Activities**

**For**

**[KY 89 Minor Widening](1)**

**Project: 10-363.10**



## **Project information**

Note – (1) = Design (2) = Construction (3) = Contractor

Owner – KENTUCKY TRANSPORTATION CABINET (1)

Resident Engineer: (2)

Contractor name: (2)

Address: (2)

Phone number: (2)

Contact: (2)

Contractors agent responsible for compliance with the KPDES permit requirements (3):

Project Control Number (2)

Route (Address) KY 89, Irvine, KY (1)

Latitude/Longitude (project mid-point) 37/43, 83/59 (1)

County (project mid-point) Estill County(1)

Project start date (date work will begin): (2)

Projected completion date: (2)

## A. Site description:

1. Nature of Construction Activity (from letting project description)  
**RECONSTRUCT KY 89 FROM 260' SOUTH OF RICE ST. IN IRVINE TO THE IRVINE BYPASS(1)**
2. Order of major soil disturbing activities (2) and (3)
3. Projected volume of material to be moved **53,286 CY(1)**
4. Estimate of total project area (acres) **12.95 (1)**
5. Estimate of area to be disturbed (acres) **12.95 (1)**
6. Post construction runoff coefficient will be included in the project drainage folder. Persons needing information pertaining to the runoff coefficient will contact the resident engineer to request this information.(1)
7. Data describing existing soil condition (1) & (2)
8. No information describing existing discharge water quality is available(1) & (2)
9. Receiving water name: **KENTUCKY RIVER, SWEET LICK CREEK, WHITE OAK CREEK(1)**
10. TMDLs and Pollutants of Concern in Receiving Waters: **NO TMDLS INVOLVED ON THIS PROJECT(1)**
11. Site map – Project layout sheet plus the erosion control sheets in the project plans that depict Disturbed Drainage Areas (DDAs) and related information. These sheets depict the existing project conditions with areas delineated by DDA (drainage area bounded by watershed breaks and right of way limits), the storm water discharge locations (either as a point discharge or as overland flow) and the areas that drain to each discharge point. These plans define the limits of areas to be disturbed and the location of control measures. Controls will be either site specific as designated by the designer or will be annotated by the contractor and resident engineer before disturbance commences. The project layout sheet shows the surface waters and wetlands.
12. Potential sources of pollutants:  
The primary source of pollutants is solids that are mobilized during storm events. Other sources of pollutants include oil/fuel/grease from servicing and operating construction equipment, concrete washout water, sanitary wastes and trash/debris.  
(3)

## **B. Sediment and Erosion Control Measures:**

- 1. Plans for highway construction projects will include erosion control sheets that depict Disturbed Drainage Areas (DDAs) and related information. These plan sheets will show the existing project conditions with areas delineated by DDA within the right of way limits, the discharge points and the areas that drain to each discharge point. Project managers and designers will analyze the DDAs and identify Best Management Practices (BMPs) that are site specific. The balance of the BMPs for the project will be listed in the bid documents for selection and use by the contractor on the project with approval by the resident engineer.**

Projects that do not have DDAs annotated on the erosion control sheets will employ the same concepts for development and managing BMP plans.

- 2. Following award of the contract, the contractor and resident engineer will annotate the erosion control sheets showing location and type of BMPs for each of the DDAs that will be disturbed at the outset of the project. This annotation will be accompanied by an order of work that reflects the order or sequence of major soil moving activities. The remaining DDAs are to be designated as "Do Not Disturb" until the contractor and resident engineer prepare the plan for BMPs to be employed. The initial BMP's shall be for the first phase (generally Clearing and Grubbing) and shall be modified as needed as the project changes phases. The BMP Plan will be modified to reflect disturbance in additional DDA's as the work progresses. All DDA's will have adequate BMP's in place before being disturbed.**

- 3. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:**

- Construction Access – This is the first land-disturbing activity. As soon as construction begins, bare areas will be stabilized with gravel and temporary mulch and/or vegetation.
- At the beginning of the project, all DDAs for the project will be inspected for areas that are a source of storm water pollutants. Areas that are a source of pollutants will receive appropriate cover or BMPs to arrest the introduction of pollutants into storm water. Areas that have not been opened by the contractor will be inspected periodically (once per month) to determine if there is a need to employ BMPs to keep pollutants from entering storm water.
- Clearing and Grubbing – The following BMP's will be considered and used where appropriate.
  - Leaving areas undisturbed when possible.
  - Silt basins to provide silt volume for large areas.

- Silt Traps Type A for small areas.
  - Silt Traps Type C in front of existing and drop inlets which are to be saved
  - Diversion ditches to catch sheet runoff and carry it to basins or traps or to divert it around areas to be disturbed.
  - Brush and/or other barriers to slow and/or divert runoff.
  - Silt fences to catch sheet runoff on short slopes. For longer slopes, multiple rows of silt fence may be considered.
  - Temporary Mulch for areas which are not feasible for the fore mentioned types of protections.
  - Non-standard or innovative methods.
- Cut & Fill and placement of drainage structures - The BMP Plan will be modified to show additional BMP's such as:
- Silt Traps Type B in ditches and/or drainways as they are completed
  - Silt Traps Type C in front of pipes after they are placed
  - Channel Lining
  - Erosion Control Blanket
  - Temporary mulch and/or seeding for areas where construction activities will be ceased for 21 days or more.
  - Non-standard or innovative methods
- Profile and X-Section in place – The BMP Plan will be modified to show elimination of BMP's which had to be removed and the addition of new BMP's as the roadway was shaped. Probably changes include:
- Silt Trap Type A, Brush and/or other barriers, Temporary Mulch, and any other BMP which had to be removed for final grading to take place.
  - Additional Silt Traps Type B and Type C to be placed as final drainage patterns are put in place.
  - Additional Channel Lining and/or Erosion Control Blanket.
  - Temporary Mulch for areas where Permanent Seeding and Protection cannot be done within 21 days.
  - Special BMP's such as Karst Policy
- Finish Work (Paving, Seeding, Protect, etc.) – A final BMP Plan will result from modifications during this phase of construction. Probably changes include:
- Removal of Silt Traps Type B from ditches and drainways if they are protected with other BMP's which are sufficient to control erosion, i.e. Erosion Control Blanket or Permanent Seeding and Protection on moderate grades.
  - Permanent Seeding and Protection
  - Placing Sod
  - Planting trees and/or shrubs where they are included in the project
- BMP's including Storm Water Management Devices such as velocity dissipation devices and Karst policy BMP's to be installed during construction to control the pollutants in storm water discharges that will occur after construction has been

completed are : PROJECT DOES NOT INCLUDE STORM WATRT BMPS OR FLOW CONTROLS (1)

### **C. Other Control Measures**

**1. No solid materials, including building materials, shall be discharged to waters of the commonwealth, except as authorized by a Section 404 permit.**

#### **2. Waste Materials**

All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in appropriate covered waste containers. Waste containers shall be removed from the project site on a sufficiently frequent basis as to not allow wastes to become a source of pollution. All personnel will be instructed regarding the correct procedure for waste disposal. Wastes will be disposed in accordance with appropriate regulations. Notices stating these practices will be posted in the office.

#### **3. Hazardous Waste**

All hazardous waste materials will be managed and disposed of in the manner specified by local or state regulation. The contractor shall notify the Resident Engineer if there are any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.

#### **4. Spill Prevention**

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

##### **➤ Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label

- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

➤ **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

**The following product-specific practices will be followed onsite:**

➤ **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55 gallon capacity and larger.

➤ **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

➤ **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

➤ **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

➤ **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations.

**D. Other State and Local Plans**

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state

or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1)

## **E. Maintenance**

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.
- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.
  - Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance. (1)

## **F. Inspections**

Inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- All erosion prevention and sediment control measures will be inspected at least once each week and following any rain of one-half inch or more.
- Inspections will be conducted by individuals that have received KyTC Grade Level II training or other qualification as prescribed by the cabinet that includes instruction concerning sediment and erosion control.
- Inspection reports will be written, signed, dated, and kept on file.
- Areas at final grade will be seeded and mulched within 14 days.
- Areas that are not at final grade where construction has ceased for a period of 21 days or longer and soil stock piles shall receive temporary mulch no later than 14 days from the last construction activity in that area.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported.
- Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.



- Sediment basins will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 70 percent of the design capacity and at the end of the job.
- Diversion dikes and berms will be inspected and any breaches promptly repaired. Areas that are eroding or scouring will be repaired and re-seeded / mulched as needed.
- Temporary and permanent seeding and mulching will be inspected for bare spots, washouts, and healthy growth. Bare or eroded areas will be repaired as needed.
- All material storage and equipment servicing areas that involve the management of bulk liquids, fuels, and bulk solids will be inspected weekly for conditions that represent a release or possible release of pollutants to the environment.

#### **G. Non – Storm Water discharges**

It is expected that non-storm water discharges may occur from the site during the construction period. Examples of non-storm water discharges include:

- Water from water line flushings.
- Water from cleaning concrete trucks and equipment.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater and rain water (from dewatering during excavation).

All non-storm water discharges will be directed to the sediment basin or to a filter fence enclosure in a flat vegetated infiltration area or be filtered via another approved commercial product.

#### **H. Groundwater Protection Plan (3)**

This plan serves as the groundwater protection plan as required by 401 KAR 5:037.

- Contractors statement: (3)

The following activities, as enumerated by 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan, will or may be may be conducted as part of this construction project:

\_\_\_\_\_ 2. (e) land treatment or land disposal of a pollutant;

\_\_\_\_\_ 2. (f) Storing, ..., or related handling of hazardous waste, solid waste or special waste, ..., in tanks, drums, or other containers, or in piles, (This does not include wastes managed

in a container placed for collection and removal of municipal solid waste for disposal off site);

\_\_\_\_\_ 2. (g) .... Handling of materials in bulk quantities (equal or greater than 55 gallons or 100 pounds net dry weight transported held in an individual container) that, if released to the environment, would be a pollutant;

\_\_\_\_\_ 2. (j) Storing or related handling of road oils, dust suppressants, ...., at a central location;

\_\_\_\_\_ 2. (k) Application or related handling of road oils, dust suppressants or deicing materials, (does not include use of chloride-based deicing materials applied to roads or parking lots);

\_\_\_\_\_ 2. (m) Installation, construction, operation, or abandonment of wells, bore holes, or core holes, (this does not include bore holes for the purpose of explosive demolition);

Or, check the following only if there are no qualifying activities

\_\_\_\_\_ There are no activities for this project as listed in 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan.

The contractor is responsible for the preparation of a plan that addresses the

401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

- a) General information about this project is covered in the Project information;
- b) Activities that require a groundwater protection plan have been identified above;
- c) Practices that will protect groundwater from pollution are addressed in section C. Other control measures.
- d) Implementation schedule – all practices required to prevent pollution of groundwater are to be in place prior to conducting the activity;
- e) Training is required as a part of the ground water protection plan. All employees of the contractor, sub-contractor and resident engineer personnel will be trained to understand the nature and requirements of this plan as they pertain to their job function(s). Training will be accomplished within one week of employment and annually thereafter. A record of training will be maintained by the contractor with a copy provide to the resident engineer.
- f) Areas of the project and groundwater plan activities will be inspected as part of the weekly sediment and erosion control inspections
- g) Certification (see signature page.)

**Contractor and Resident Engineer Plan certification**

The contractor that is responsible for implementing this BMP plan is identified in the Project Information section of this plan.

The following certification applies to all parties that are signatory to this BMP plan:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, this plan complies with the requirements of 401 KAR 5:037. By this certification, the undersigned state that the individuals signing the plan have reviewed the terms of the plan and will implement its provisions as they pertain to ground water protection.

Resident Engineer and Contractor Certification:

(2) Resident Engineer signature

Signed \_\_\_\_\_title\_\_\_\_\_, \_\_\_\_\_

Typed or printed name<sup>2</sup>signature

(3) Signed \_\_\_\_\_title\_\_\_\_\_, \_\_\_\_\_

Typed or printed name<sup>1</sup>signature

1. Contractors Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.
2. KyTC note: to be signed by the Chief District Engineer or a person designated to have the authority to sign reports by such a person (usually the resident engineer) in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601 Reference the Project Control Number (PCN) and KPDES number when one has been issued.

Sub-Contractor Certification

The following sub-contractor shall be made aware of the BMP plan and responsible for implementation of BMPs identified in this plan as follows:

Subcontractor

Name:

Address:

Address:

Phone:

The part of BMP plan this subcontractor is responsible to implement is:

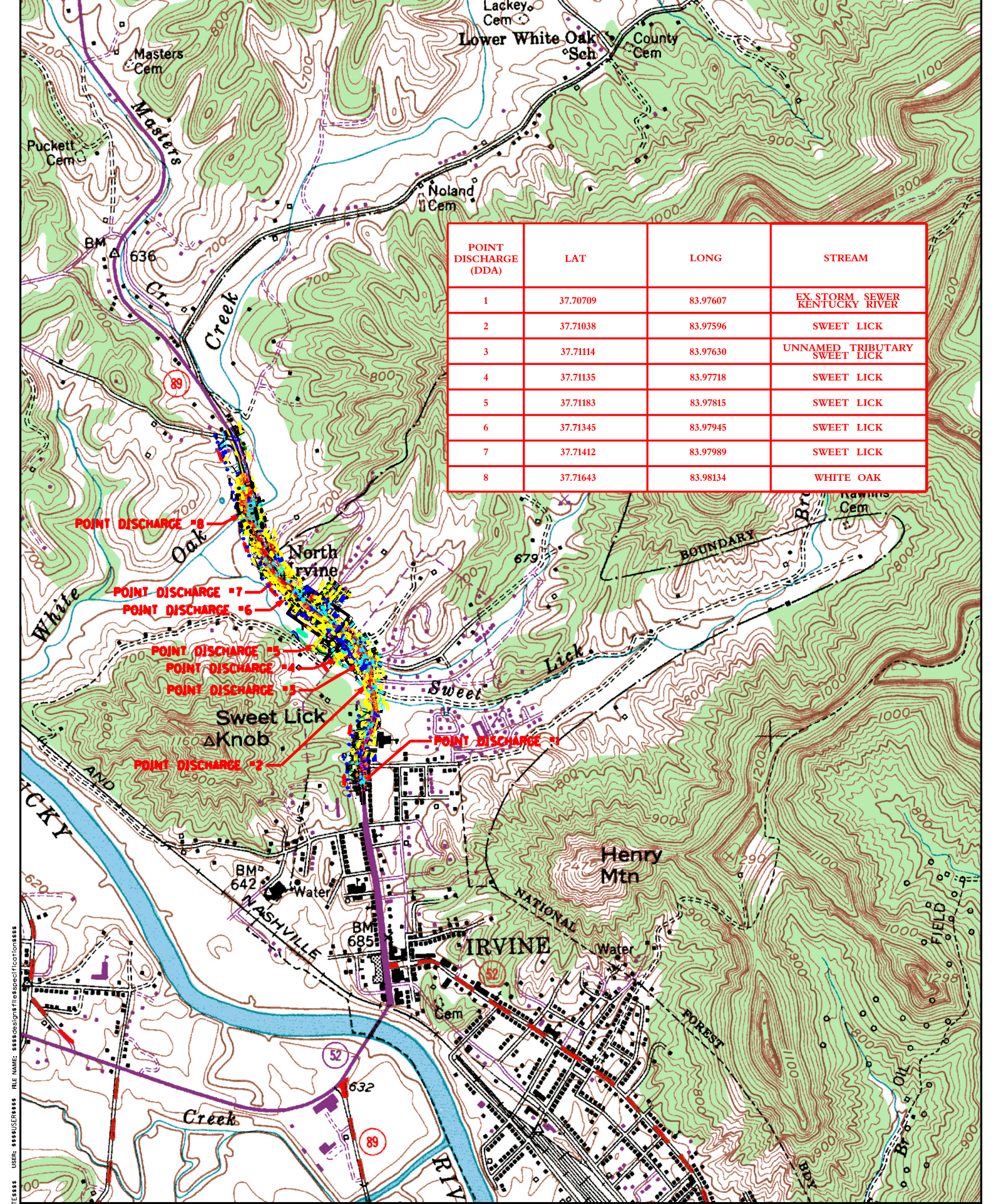
I certify under penalty of law that I understand the terms and conditions of the general Kentucky Pollutant Discharge Elimination System permit that authorizes the storm water discharges, the BMP plan that has been developed to manage the quality of water to be discharged as a result of storm events associated with the construction site activity and management of non-storm water pollutant sources identified as part of this certification.

Signed \_\_\_\_\_title\_\_\_\_\_, \_\_\_\_\_

Typed or printed name<sup>1</sup>signature

1. Sub Contractor Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.





POINT DISCHARGE (DDA)	LAT	LONG	STREAM
1	37.70709	83.97607	EX. STORM SEWER KENTUCKY RIVER
2	37.71038	83.97596	SWEET LICK
3	37.71114	83.97630	UNNAMED TRIBUTARY SWEET LICK
4	37.71135	83.97718	SWEET LICK
5	37.71183	83.97815	SWEET LICK
6	37.71345	83.97945	SWEET LICK
7	37.71412	83.97989	SWEET LICK
8	37.71643	83.98134	WHITE OAK

DATE: 8/28/2018 USER: ssssdte8888 FILE NAME: ssssdte8888\specifications\ssssdte8888



<b>EXHIBIT #2</b>
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**PCN #**

**SYP Item #10-363.10 Minor Widening of KY 89 in Irvine**

**KPDES NOI for Stormwater Discharges Associated with  
Construction Activity Under the KPDES General Permit**

**Transaction ID:**

cbda6b17-28b9-43ff-92ed-910745569fc2

07 OCT 2015

<b>Item No.</b>	10 - 363.1	<b>Project Mgr.</b> kytcdarren.Back	
		<b>County</b> ESTILL	<b>Route</b> KY-89
<b>CAP #</b>	<b>Date of Promise</b>	<b>Promise made to:</b>	<b>Location of Promise</b>
1	06-OCT-15	P4 - Myra Finney	Sta. 103+00 Right
<b>CAP Description</b>			
Owner will retain the iron and brick fencing on front of parcel. Contractor will make best effort not to damage materials when removing them.			
2	06-OCT-15	P11 - Marsha & Lawrence Hughes	Sta. 110+00 Left
<b>CAP Description</b>			
KYTC agreed to remove the 30" sycamore tree located in the driveway by the pillar if the property owners wanted it to be removed. A note was placed in the plans to remove it. However, the contractor should check with this property owner prior to removal to see if the tree is to be removed or not. The pillars on the side of the driveway will remain.			
3	06-OCT-15	P13 - Carl Young II	~Sta. 114+00 Left
<b>CAP Description</b>			
The contractor will relocate the mailboxes on this parcel if needed to ensure that the residents have uninterrupted mail service throughout construction and after construction is finished. This work will be incidental to Clearing and Grubbing.			
4	06-OCT-15	P14 - Billy Williams	Sta. 114+10 Right
<b>CAP Description</b>			
The brick sign will not be disturbed during construction. The contractor is responsible if damage to the brick sign from construction activities occurs.			
5	06-OCT-15	P42 - Eugene and Debbie Hurst	Sta. 126+96 Right
<b>CAP Description</b>			
The entrance to this parcel at this location will be concrete. This is noted in the plans.			
6	06-OCT-15	P46 - Anthony and Melva Abney	Valley Drive
<b>CAP Description</b>			
KYTC has agreed that the Valley Drive entrance to this parcel will not be used as a detour or access road for any neighboring parcels temporarily during construction or permanently.			
7	06-OCT-15	P51 - Gwendolyn Hurst	Sheet R13 P51
<b>CAP Description</b>			
Any disturbed area on this parcel will be reseeded with a native grass.			
8	06-OCT-15	P142 - Hughes	Sta. 102+00 LEFT
<b>CAP Description</b>			
KYTC has agreed to remove the steps to this parcel and run a retaining wall across the front. This is noted in the plans and quantities.			
9	07-OCT-15	P9 - Bobby & Hazel Jo Sherrard	~Sta. 108+70 Left Entrance
<b>CAP Description</b>			
The entrance to this parcel at this location will be concrete. This is noted in the plans.			
10	07-OCT-15	P35/37 - Riverview Hotel, Inc.	~Sta. 124+00 - 125+75
<b>CAP Description</b>			
For this parcel, contractor will preserve mailboxes within ROW and easements for the project. Remove and relocate mailboxes as necessary during construction of the project, and reinstall at their permanent location when practical. During construction of the project, provide access to mailboxes for Postal Service vehicles at all times. Install mailboxes at temporary and final locations according to the requirements of the Department and USPS. Contractor to maintain continuous ingress and egress to the property as stated in the plans.			

07 OCT 2015

<u>Item No.</u>				<u>Project Mgr.</u>	kytc\Darren.Back
			<u>County</u>	ESTILL	<u>Route</u> KY-89
11	07-OCT-15	P36 - Dextral Horn	R21 Clearview Drive		
<u>CAP Description</u> The contractor will replace owner's entrance to the back portion of his adjacent parcel (P34) as is shown on the plans.					
12	07-OCT-15	P52 - Johnny Shepherd	R13 ~Sta. 132+00 - 133+00 Left		
<u>CAP Description</u> For this parcel, contractor will preserve mailboxes within ROW and easements for the project. Remove and relocate mailboxes as necessary during construction of the project, and reinstall at their permanent location when practical. During construction of the project, provide access to mailboxes for Postal Service vehicles at all times. Install mailboxes at temporary and final locations according to the requirements of the Department and USPS. Contractor to maintain continuous ingress and egress to the property as stated in the plans.					
13	07-OCT-15	P138 - Greg & Rebecca Werner	R3 ~Sta. 101+00 Left		
<u>CAP Description</u> The contractor will remove a dogwood tree in the front yard. KYTC has already compensated the owner for the tree. The contractor will confirm with the property owner the location of the tree.					
14	07-OCT-15	P143 - Edward & Peggy Wilson	R3 ~Sta. 101+90 Left		
<u>CAP Description</u> The contractor will maintain continuous ingress and egress from the parcel as stated in the traffic notes of the plans.					
15	07-OCT-15	P144 - Johnny Clay Shepherd	R13/R15 - ~Sta. 134+00 Left		
<u>CAP Description</u> For this parcel, contractor will preserve mailboxes within ROW and easements for the project. Remove and relocate mailboxes as necessary during construction of the project, and reinstall at their permanent location when practical. During construction of the project, provide access to mailboxes for Postal Service vehicles at all times. Install mailboxes at temporary and final locations according to the requirements of the Department and USPS. Contractor to maintain continuous ingress and egress to the property as stated in the plans.					



**PART II**

**SPECIFICATIONS AND STANDARD DRAWINGS**

### **SPECIFICATIONS REFERENCE**

Any reference in the plans or proposal to previous editions of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 2012* and *Standard Drawings, Edition of 2012 with the 2012 Revision*.

**Supplemental Specifications to the  
Standard Specifications for Road and Bridge Construction, 2012 Edition  
Effective with the July 31, 2015 Letting**

<b>Subsection:</b>	102.15 Process Agent.
<b>Revision:</b>	Replace the 1st paragraph with the following: Every corporation doing business with the Department shall submit evidence of compliance with KRS Sections 14A.4-010, 271B.11-010, 271B.11-070, 271B.11-080, 271B.5-010 and 271B.16-220, and file with the Department the name and address of the process agent upon whom process may be served.
<b>Subsection:</b>	105.13 Claims Resolution Process.
<b>Revision:</b>	Delete all references to TC 63-34 and TC 63-44 from the subsection as these forms are no longer available through the forms library and are forms generated within the AASHTO SiteManager software.
<b>Subsection:</b>	108.03 Preconstruction Conference.
<b>Revision:</b>	Replace 8) Staking with the following: 8) Staking (designated by a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
<b>Subsection:</b>	109.07.02 Fuel.
<b>Revision:</b>	Revise item Crushed Aggregate Used for Embankment Stabilization to the following: Crushed Aggregate Used for Stabilization of Unsuitable Materials Used for Embankment Stabilization
	Delete the following item from the table. <del>Crushed Sandstone Base (Cement Treated)</del>
<b>Subsection:</b>	110.02 Demobilization.
<b>Revision:</b>	Replace the first part of the first sentence of the second paragraph with the following: Perform all work and operations necessary to accomplish final clean-up as specified in the first paragraph of Subsection 105.12;
<b>Subsection:</b>	112.03.12 Project Traffic Coordinator (PTC).
<b>Revision:</b>	Replace the last paragraph of this subsection with the following: Ensure the designated PTC has sufficient skill and experience to properly perform the task assigned and has successfully completed the qualification courses.
<b>Subsection:</b>	112.04.18 Diversions (By-Pass Detours).
<b>Revision:</b>	Insert the following sentence after the 2nd sentence of this subsection. The Department will not measure temporary drainage structures for payment when the contract documents provide the required drainage opening that must be maintained with the diversion. The temporary drainage structures shall be incidental to the construction of the diversion. If the contract documents fail to provide the required drainage opening needed for the diversion, the cost of the temporary drainage structure will be handled as extra work in accordance with section 109.04.
<b>Subsection:</b>	201.03.01 Contractor Staking.
<b>Revision:</b>	Replace the first paragraph with the following: Perform all necessary surveying under the general supervision of a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.

**Supplemental Specifications to the  
Standard Specifications for Road and Bridge Construction, 2012 Edition  
Effective with the July 31, 2015 Letting**

<b>Subsection:</b>	201.04.01 Contractor Staking.
<b>Revision:</b>	Replace the last sentence of the paragraph with the following: Complete the general layout of the project under the supervision of a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
<b>Subsection:</b>	206.04.01 Embankment-in-Place.
<b>Revision:</b>	Replace the fourth paragraph with the following: The Department will not measure <b>suitable</b> excavation included in the original plans that is disposed of for payment and will consider it incidental to Embankment-in-Place.
<b>Subsection:</b>	208.02.01 Cement.
<b>Revision:</b>	Replace paragraph with the following: Select Type I or Type II cement conforming to Section 801. Use the same type cement throughout the work.
<b>Subsection:</b>	208.03.06 Curing and Protection.
<b>Revision:</b>	Replace the fourth paragraph with the following: Do not allow traffic or equipment on the finished surface until the stabilized subgrade has cured for a total of 7-days with an ambient air temperature above 40 degrees Fahrenheit. A curing day consists of a continuous 24-hour period in which the ambient air temperature does not fall below 40 degrees Fahrenheit. Curing days will not be calculated consecutively, but must total seven (7) , 24-hour days with the ambient air temperature remaining at or above 40 degrees Fahrenheit before traffic or equipment will be allowed to traverse the stabilized subgrade. The Department may allow a shortened curing period when the Contractor requests. The Contractor shall give the Department at least 3 day notice of the request for a shortened curing period. The Department will require a minimum of 3 curing days after final compaction. The Contractor shall furnish cores to the treated depth of the roadbed at 500 feet intervals for each lane when a shortened curing time is requested. The Department will test cores using an unconfined compression test. Roadbed cores must achieve a minimum strength requirement of 80 psi.
<b>Subsection:</b>	208.03.06 Curing and Protection.
<b>Revision:</b>	Replace paragraph eight with the following: At no expense to the Department, repair any damage to the subgrade caused by freezing.
<b>Subsection:</b>	212.03.03 Permanent Seeding and Protection.
<b>Part:</b>	A) Seed Mixtures for Permanent Seeding.
<b>Revision:</b>	Revise <b>Seed Mix Type I</b> to the mixture shown below: 50% Kentucky 31 Tall Fescue ( <i>Festuca arundinacea</i> ) 35% Hard Fescue ( <i>Festuca (Festuca longifolia)</i> ) 10% Ryegrass, Perennial ( <i>Lolium perenne</i> ) 5% White Dutch Clover ( <i>Trifolium repens</i> )
<b>Subsection:</b>	212.03.03 Permanent Seeding and Protection.
<b>Part:</b>	A) Seed Mixtures for Permanent Seeding.
<b>Number:</b>	2)
<b>Revision:</b>	Replace the paragraph with the following: Permanent Seeding on Slopes Greater than 3:1 in Highway Districts 4, 5, 6, and 7. Apply seed mix Type II at a minimum application rate of 100 pounds per acre. If adjacent to a golf course replace the crown vetch with Kentucky 31 Tall Fescue.

**Supplemental Specifications to the  
Standard Specifications for Road and Bridge Construction, 2012 Edition  
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<b>Subsection:</b>	212.03.03 Permanent Seeding and Protection.
<b>Part:</b>	A) Seed Mixtures for Permanent Seeding.
<b>Number:</b>	3)
<b>Revision:</b>	Replace the paragraph with the following: Permanent Seeding on Slopes Greater than 3:1 in Highway Districts 1, 2, 3, 8, 9, 10, 11, and 12. Apply seed mix Type III at a minimum application rate of 100 pounds per acre. If adjacent to crop land or golf course, replace the Sericea Lespedeza with Kentucky 31 Fescue.
<b>Subsection:</b>	212.03.03 Permanent Seeding and Protection.
<b>Part:</b>	B) Procedures for Permanent Seeding.
<b>Revision:</b>	Delete the first sentence of the section.
<b>Subsection:</b>	212.03.03 Permanent Seeding and Protection.
<b>Part:</b>	B) Procedures for Permanent Seeding.
<b>Revision:</b>	Replace the second and third sentence of the section with the following: Prepare a seedbed and apply an initial fertilizer that contains a minimum of 100 pounds of nitrogen, 100 pounds of phosphate, and 100 pounds of potash per acre. Apply agricultural limestone to the seedbed when the Engineer determines it is needed. When required, place agricultural limestone at a rate of 3 tons per acre.
<b>Subsection:</b>	212.03.03 Permanent Seeding and Protection.
<b>Part:</b>	D) Top Dressing.
<b>Revision:</b>	Change the title of part to D) Fertilizer.
<b>Subsection:</b>	212.03.03 Permanent Seeding and Protection.
<b>Part:</b>	D) Fertilizer.
<b>Revision:</b>	Replace the first paragraph with the following: Apply fertilizer at the beginning of the seeding operation and after vegetation is established. Use fertilizer delivered to the project in bags or bulk. Apply initial fertilizer to all areas prior to the seeding or sodding operation at the application rate specified in 212.03.03 B). Apply 20-10-10 fertilizer to the areas after vegetation has been established at a rate of 11.5 pounds per 1,000 square feet. Obtain approval from the Engineer prior to the 2nd fertilizer application. Reapply fertilizer to any area that has a streaked appearance. The reapplication shall be at no additional cost to the Department. Re-establish any vegetation severely damaged or destroyed because of an excessive application of fertilizer at no cost to the Department.
<b>Subsection:</b>	212.03.03 Permanent Seeding and Protection.
<b>Part:</b>	D) Fertilizer.
<b>Revision:</b>	Delete the second paragraph.
<b>Subsection:</b>	212.04.04 Agricultural Limestone.
<b>Revision:</b>	Replace the entire section with the following: The Department will measure the quantity of agricultural limestone in tons.
<b>Subsection:</b>	212.04.05 Fertilizer.
<b>Revision:</b>	Replace the entire section with the following: The Department will measure fertilizer used in the seeding or sodding operations for payment. The Department will measure the quantity by tons.

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<b>Subsection:</b>	212.05 PAYMENT.		
<b>Revision:</b>	Delete the following item code:		
	<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
	05966	Topdressing Fertilizer	Ton
<b>Subsection:</b>	212.05 PAYMENT.		
<b>Revision:</b>	Add the following pay items:		
	<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
	05963	Initial Fertilizer	Ton
	05964	20-10-10 Fertilizer	Ton
	05992	Agricultural Limestone	Ton
<b>Subsection:</b>	213.03.02 Progress Requirements.		
<b>Revision:</b>	Replace the last sentence of the third paragraph with the following:      Additionally, the Department will apply a penalty equal to the liquidated damages when all aspects of work are not coordinated in an acceptable manner within 7 calendar days after written notification.		
<b>Subsection:</b>	213.03.05 Temporary Control Measures.		
<b>Part:</b>	E) Temporary Seeding and Protection.		
<b>Revision:</b>	Delete the second sentence of the first paragraph.		
<b>Subsection:</b>	304.02.01 Physical Properties.		
<b>Table:</b>	Required Geogrid Properties		
<b>Revision:</b>	Replace all references to Test Method "GRI-GG2-87" with ASTM D 7737.		
<b>Subsection:</b>	402.03.02 Contractor Quality Control and Department Acceptance.		
<b>Part:</b>	B) Sampling.		
<b>Revision:</b>	Replace the second sentence with the following: The Department will determine when to obtain the quality control samples using the random-number feature of the mix design submittal and approval spreadsheet. The Department will randomly determine when to obtain the verification samples required in Subsections 402.03.03 and 402.03.04 using the Asphalt Mixture Sample Random Tonnage Generator.		
<b>Subsection:</b>	402.03.02 Contractor Quality Control and Department Acceptance.		
<b>Part:</b>	D) Testing Responsibilities.		
<b>Number:</b>	3) VMA.		
<b>Revision:</b>	Add the following paragraph below Number 3) VMA: Retain the AV/VMA specimens and one additional corresponding G <sub>mm</sub> sample for 5 working days for mixture verification testing by the Department. For Specialty Mixtures, retain a mixture sample for 5 working days for mixture verification testing by the Department. When the Department's test results do not verify that the Contractor's quality control test results are within the acceptable tolerances according to Subsection 402.03.03, retain the samples and specimens from the affected subplot(s) for the duration of the project.		
<b>Subsection:</b>	402.03.02 Contractor Quality Control and Department Acceptance.		
<b>Part:</b>	D) Testing Responsibilities.		
<b>Number:</b>	4) Density.		
<b>Revision:</b>	Replace the second sentence of the Option A paragraph with the following: Perform coring by the end of the following work day.		

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<b>Subsection:</b>	402.03.02 Contractor Quality Control and Department Acceptance.
<b>Part:</b>	D) Testing Responsibilities.
<b>Number:</b>	5) Gradation.
<b>Revision:</b>	Delete the second paragraph.
<b>Subsection:</b>	402.03.02 Contractor Quality Control and Department Acceptance.
<b>Part:</b>	H) Unsatisfactory Work.
<b>Number:</b>	1) Based on Lab Data.
<b>Revision:</b>	Replace the second paragraph with the following: When the Engineer determines that safety concerns or other considerations prohibit an immediate shutdown, continue work and the Department will make an evaluation of acceptability according to Subsection 402.03.05.
<b>Subsection:</b>	402.03.03 Verification.
<b>Revision:</b>	Replace the first paragraph with the following: <b>402.03.03 Mixture Verification.</b> For volumetric properties, the Department will perform a minimum of one verification test for AC, AV, and VMA according to the corresponding procedures as given in Subsection 402.03.02. The Department will randomly determine when to obtain the verification sample using the Asphalt Mixture Sample Random Tonnage Generator. For specialty mixtures, the Department will perform one AC and one gradation determination per lot according to the corresponding procedures as given in Subsection 402.03.02. However, Department personnel will not perform AC determinations according to KM 64-405. The Contractor will obtain a quality control sample at the same time the Department obtains the mixture verification sample and perform testing according to the procedures given in Subsection 402.03.02. If the Contractor's quality control sample is verified by the Department's test results within the tolerances provided below, the Contractor's sample will serve as the quality control sample for the affected subplot. The Department may perform the mixture verification test on the Contractor's equipment or on the Department's equipment.
<b>Subsection:</b>	402.03.03 Verification.
<b>Part:</b>	A) Evaluation of Subplot(s) Verified by Department.
<b>Revision:</b>	Replace the third sentence of the second paragraph with the following: When the paired $t$ -test indicates that the Contractor's data and Department's data are possibly not from the same population, the Department will investigate the cause for the difference according to Subsection 402.03.05 and implement corrective measures as the Engineer deems appropriate.
<b>Subsection:</b>	402.03.03 Verification.
<b>Part:</b>	B) Evaluation of Subplots Not Verified by Department.
<b>Revision:</b>	Replace the third sentence of the first paragraph with the following: When differences between test results are not within the tolerances listed below, the Department will resolve the discrepancy according to Subsection 402.03.05.

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<b>Subsection:</b>	402.03.03 Verification.
<b>Part:</b>	B) Evaluation of Sublots Not Verified by Department.
<b>Revision:</b>	Replace the third sentence of the second paragraph with the following: When the <i>F</i> -test or <i>t</i> -test indicates that the Contractor's data and Department's data are possibly not from the same population, the Department will investigate the cause for the difference according to Subsection 402.03.05 and implement corrective measures as the Engineer deems appropriate.
<b>Subsection:</b>	402.03.03 Verification.
<b>Part:</b>	C) Test Data Patterns.
<b>Revision:</b>	Replace the second sentence with the following: When patterns indicate substantial differences between the verified and non-verified sublots, the Department will perform further comparative testing according to subsection 402.03.05.
<b>Subsection:</b>	402.03 CONSTRUCTION.
<b>Revision:</b>	Add the following subsection: <b>402.03.04 Testing Equipment and Technician Verification.</b> For mixtures with a minimum quantity of 20,000 tons and for every 20,000 tons thereafter, the Department will obtain an additional verification sample at random using the Asphalt Mixture Sample Random Tonnage Generator in order to verify the integrity of the Contractor's and Department's laboratory testing equipment and technicians. The Department will obtain a mixture sample of at least 150 lb at the asphalt mixing plant according to KM 64-425 and split it according to AASHTO R 47. The Department will retain one split portion of the sample and provide the other portion to the Contractor. At a later time convenient to both parties, the Department and Contractor will simultaneously reheat the sample to the specified compaction temperature and test the mixture for AV and VMA using separate laboratory equipment according to the corresponding procedures given in Subsection 402.03.02. The Department will evaluate the differences in test results between the two laboratories. When the difference between the results for AV or VMA is not within $\pm 2.0$ percent, the Department will investigate and resolve the discrepancy according to Subsection 402.03.05.
<b>Subsection:</b>	402.03.04 Dispute Resolution.
<b>Revision:</b>	Change the subsection number to 402.03.05.
<b>Subsection:</b>	402.05 PAYMENT.
<b>Part:</b>	Lot Pay Adjustment Schedule Compaction Option A Base and Binder Mixtures
<b>Table:</b>	AC
<b>Revision:</b>	Replace the Deviation from JMF(%) that corresponds to a Pay Value of 0.95 to $\pm 0.6$ .
<b>Subsection:</b>	403.02.10 Material Transfer Vehicle (MTV).
<b>Revision:</b>	Replace the first sentence with the following: In addition to the equipment specified above, provide a MTV with the following minimum characteristics:
<b>Subsection:</b>	412.02.09 Material Transfer Vehicle (MTV).
<b>Revision:</b>	Replace the paragraph with the following: Provide and utilize a MTV with the minimum characteristics outlined in section 403.02.10.



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<b>Subsection:</b>	412.03.07 Placement and Compaction.
<b>Revision:</b>	Replace the first paragraph with the following: Use a MTV when placing SMA mixture in the driving lanes. The MTV is not required on ramps and/or shoulders unless specified in the contract. When the Engineer determines the use of the MTV is not practical for a portion of the project, the Engineer may waive its requirement for that portion of pavement by a letter documenting the waiver.
<b>Subsection:</b>	412.04 MEASUREMENT.
<b>Revision:</b>	Add the following subsection: 412.04.03. Material Transfer Vehicle (MTV). The Department will not measure the MTV for payment and will consider its use incidental to the asphalt mixture.
<b>Subsection:</b>	501.03.05 Weather Limitations and Protection.
<b>Revision:</b>	Replace the reference to Subsection 501.03.19 in Paragraph 5, with Subsection 501.03.20.
<b>Subsection:</b>	501.03.19 Surface Tolerances and Testing Surface.
<b>Part:</b>	B) Ride Quality.
<b>Revision:</b>	Add the following to the end of the first paragraph: The Department will specify if the ride quality requirements are Category A or Category B when ride quality is specified in the Contract. Category B ride quality requirements shall apply when the Department fails to classify which ride quality requirement will apply to the Contract.
<b>Subsection:</b>	603.03.06 Cofferdams.
<b>Revision:</b>	Replace the seventh sentence of paragraph one with the following: Submit drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky.
<b>Subsection:</b>	605.03.04 Tack Welding.
<b>Revision:</b>	Insert the subsection and the following: 605.03.04 Tack Welding. The Department does not allow tack welding.
<b>Subsection:</b>	606.03.17 Special Requirements for Latex Concrete Overlays.
<b>Part:</b>	A) Existing Bridges and New Structures.
<b>Number:</b>	1) Prewetting and Grout-Bond Coat.
<b>Revision:</b>	Add the following sentence to the last paragraph: Do not apply a grout-bond coat on bridge decks prepared by hydrodemolition.
<b>Subsection:</b>	609.03 Construction.
<b>Revision:</b>	Replace Subsection 609.03.01 with the following: 609.03.01 A) Swinging the Spans. Before placing concrete slabs on steel spans or precast concrete release the temporary erection supports under the bridge and swing the span free on its supports. 609.03.01 B) Lift Loops. Cut all lift loops flush with the top of the precast beam once the beam is placed in the final location and prior to placing steel reinforcement. At locations where lift loops are cut, paint the top of the beam with galvanized or epoxy paint.

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<b>Subsection:</b>	611.03.02 Precast Unit Construction.
<b>Revision:</b>	Replace the first sentence of the subsection with the following: Construct units according to ASTM C1577, <b>replacing Table 1 (Design Requirements for Precast Concrete Box Sections Under Earth, Dead and HL-93 Live Load Conditions) with KY Table 1 (Precast Culvert KYHL-93 Design Table)</b> , and Section 605 with the following exceptions and additions:
<b>Subsection:</b>	613.03.01 Design.
<b>Number:</b>	2)
<b>Revision:</b>	Replace "AASHTO Standard Specifications for Highway Bridges" with "AASHTO LRFD Bridge Design Specifications"
<b>Subsection:</b>	615.06.02
<b>Revision:</b>	Add the following sentence to the end of the subsection. The ends of units shall be normal to walls and centerline except exposed edges shall be beveled $\frac{3}{4}$ inch.
<b>Subsection:</b>	615.06.03 Placement of Reinforcement in Precast 3-Sided Units.
<b>Revision:</b>	Replace the reference of 6.6 in the section to 615.06.06.
<b>Subsection:</b>	615.06.04 Placement of Reinforcement for Precast Endwalls.
<b>Revision:</b>	Replace the reference of 6.7 in the section to 615.06.07.
<b>Subsection:</b>	615.06.06 Laps, Welds, and Spacing for Precast 3-Sided Units.
<b>Revision:</b>	Replace the subsection with the following: Tension splices in the circumferential reinforcement shall be made by lapping. Laps may not be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.2 and AASHTO 2012 Bridge Design Guide Section 5.11.6.3. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.1 and AASHTO 2012 Bridge Design Guide Section 5.11.6.2. The overlap of welded wire fabric shall be measured between the outer most longitudinal wires of each fabric sheet. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.1. For splices other than tension splices, the overlap shall be a minimum of 12" for welded wire fabric or deformed billet-steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be no less than 2 inches and no more than 4 inches. The spacing center to center of the longitudinal wires shall not be more than 8 inches. The spacing center to center of the longitudinal distribution steel for either line of reinforcing in the top slab shall be not more than 16 inches.
<b>Subsection:</b>	615.06.07 Laps, Welds, and Spacing for Precast Endwalls.
<b>Revision:</b>	Replace the subsection with the following: Splices in the reinforcement shall be made by lapping. Laps may not be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.2 and AASHTO 2012 Bridge Design Guide Section 5.11.6.3. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.1 and AASHTO 2012 Bridge Design Guide Section 5.11.6.2. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.1. The spacing center-to-center of the wire fabric sheet shall not be less than 2 inches or more than 8 inches.

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<b>Subsection:</b>	615.08.01 Type of Test Specimen.
<b>Revision:</b>	Replace the subsection with the following: Start-up slump, air content, unit weight, and temperature tests will be performed each day on the first batch of concrete. Acceptable start-up results are required for production of the first unit. After the first unit has been established, random acceptance testing is performed daily for each 50 yd <sup>3</sup> (or fraction thereof). In addition to the slump, air content, unit weight, and temperature tests, a minimum of one set of cylinders shall be required each time plastic property testing is performed.
<b>Subsection:</b>	615.08.02 Compression Testing.
<b>Revision:</b>	Delete the second sentence.
<b>Subsection:</b>	615.08.04 Acceptability of Core Tests.
<b>Revision:</b>	Delete the entire subsection.
<b>Subsection:</b>	615.12 Inspection.
<b>Revision:</b>	Add the following sentences to the end of the subsection: Units will arrive at jobsite with the "Kentucky Oval" stamped on the unit which is an indication of acceptable inspection at the production facility. Units shall be inspected upon arrival for any evidence of damage resulting from transport to the jobsite.
<b>Subsection:</b>	701.04.16 Deduction for Pipe Deflection.
<b>Revision:</b>	Insert the following at the end of the paragraph: The section length is determined by the length of the pipe between joints where the failure occurred.
<b>Subsection:</b>	716.02.02 Paint.
<b>Revision:</b>	Replace sentence with the following: Conform to Section 821.
<b>Subsection:</b>	716.03 CONSTRUCTION.
<b>Revision:</b>	Replace bullet 5) with the following: 5) AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims,
<b>Subsection:</b>	716.03.02 Lighting Standard Installation.
<b>Revision:</b>	Replace the second sentence with the following: Regardless of the station and offset noted, locate all poles/bases behind the guardrail a minimum of four feet from the front face of the guardrail to the front face of the pole base.
<b>Subsection:</b>	716.03.02 Lighting Standard Installation.
<b>Part:</b>	A) Conventional Installation.
<b>Revision:</b>	Replace the third sentence with the following: Orient the transformer base so the door is positioned on the side away from on-coming traffic.
<b>Subsection:</b>	716.03.02 Lighting Standard Installation.
<b>Part:</b>	A) Conventional Installation.
<b>Number:</b>	1) Breakaway Installation and Requirements.
<b>Revision:</b>	Replace the first sentence with the following: For breakaway supports, conform to Section 12 of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
<b>Subsection:</b>	716.03.02 Lighting Standard Installation.
<b>Part:</b>	B) High Mast Installation
<b>Revision:</b>	Replace the first sentence with the following: Install each high mast pole as noted on plans.

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<b>Subsection:</b>	716.03.02 Lighting Standard Installation.																																																																
<b>Part:</b>	B) High Mast Installation																																																																
<b>Number:</b>	2) Concrete Base Installation																																																																
<b>Revision:</b>	Modification of Chart and succeeding paragraphs within this section:																																																																
	<table><tr><th colspan="8">Drilled Shaft Depth Data</th></tr><tr><th colspan="2">Level Ground</th><th colspan="2">3:1 Ground Slope</th><th colspan="2">2:1 Ground Slope</th><th colspan="2">1.5:1 Ground Slope <sup>(2)</sup></th></tr><tr><th>Soil</th><th>Rock</th><th>Soil</th><th>Rock</th><th>Soil</th><th>Rock</th><th>Soil</th><th>Rock</th></tr><tr><td>17 ft</td><td>7 ft</td><td>19 ft</td><td>7 ft</td><td>20 ft</td><td>7 ft</td><td>(1)</td><td>7 ft</td></tr><tr><th colspan="4">Steel Requirements</th><th colspan="4"></th></tr><tr><th colspan="2">Vertical Bars</th><th colspan="2">Ties or Spiral</th><th colspan="4"></th></tr><tr><th>Size</th><th>Total</th><th>Size</th><th>Spacing or Pitch</th><th colspan="4"></th></tr><tr><td>#10</td><td>16</td><td>#4</td><td>12 inch</td><th colspan="4"></th></tr></table> <p>(1): Shaft length is 22' for cohesive soil only. For cohesionless soil, contact geotechnical branch for design.</p> <p>(2): Do not construct high mast drilled shafts on ground slopes steeper than 1.5:1 without the approval of the Division of Traffic.</p> <p>If rock is encountered during drilling operations and confirmed by the engineer to be of sound quality, the shaft is only required to be further advanced into the rock by the length of rock socket shown in the table. The total length of the shaft need not be longer than that of soil alone. Both longitudinal rebar length and number of ties or spiral length shall be adjusted accordingly.</p> <p>If a shorter depth is desired for the drilled shaft, the contractor shall provide, for the state's review and approval, a detailed column design with individual site specific soil and rock analysis performed and approved by a Professional Engineer licensed in the Commonwealth of Kentucky</p> <p>Spiral reinforcement may be substituted for ties. If spiral reinforcement is used, one and one-half closed coils shall be provided at the ends of each spiral unit. Subsurface conditions consisting of very soft clay or very loose saturated sand could result in soil parameters weaker than those assumed. Engineer shall consult with the geotechnical branch if such conditions are encountered.</p> <p>The bottom of the drilled hole shall be firm and thoroughly cleaned so no loose or compressible materials are present at the time of the concrete placement. If the drilled hole contains standing water, the concrete shall be placed using a tremie to displace water. Continuous concrete flow will be required to insure full displacement of any water.</p> <p>The reinforcement and anchor bolts shall be adequately supported in the proper positions so no movement occurs during concrete placement. Welding of anchor bolts to the reinforcing cage is unacceptable, templates shall be used. Exposed portions of the foundation shall be formed to create a smooth finished surface. All forming shall be removed upon completion of foundation construction.</p>	Drilled Shaft Depth Data								Level Ground		3:1 Ground Slope		2:1 Ground Slope		1.5:1 Ground Slope <sup>(2)</sup>		Soil	Rock	Soil	Rock	Soil	Rock	Soil	Rock	17 ft	7 ft	19 ft	7 ft	20 ft	7 ft	(1)	7 ft	Steel Requirements								Vertical Bars		Ties or Spiral						Size	Total	Size	Spacing or Pitch					#10	16	#4	12 inch				
Drilled Shaft Depth Data																																																																	
Level Ground		3:1 Ground Slope		2:1 Ground Slope		1.5:1 Ground Slope <sup>(2)</sup>																																																											
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<b>Subsection:</b>	716.03.03 Trenching.																																																																
<b>Part:</b>	A) Trenching of Conduit for Highmast Ducted Cables.																																																																
<b>Revision:</b>	Add the following after the first sentence: If depths greater than 24 inches are necessary, obtain the Engineer's approval and maintain the required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.																																																																

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<b>Subsection:</b>	716.03.03 Trenching.
<b>Part:</b>	B) Trenching of Conduit for Non-Highmast Cables.
<b>Revision:</b>	Add the following after the second sentence: If depths greater than 24 inches are necessary for either situation listed previously, obtain the Engineer's approval and maintain the required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.
<b>Subsection:</b>	716.03.10 Junction Boxes.
<b>Revision:</b>	Replace subsection title with the following: Electrical Junction Box.
<b>Subsection:</b>	716.04.07 Pole with Secondary Control Equipment.
<b>Revision:</b>	Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure mounting the cabinet to the pole, backfilling, restoration, any necessary hardware to anchor pole, or electrical inspection fees, and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, specified conduits, meter base, transformer, service panel, fused cutout, fuses, lighting arrestors, photoelectrical control, circuit breaker, contactor, manual switch, ground rods, and ground wires and will consider them incidental to this item of work.
<b>Subsection:</b>	716.04.08 Lighting Control Equipment.
<b>Revision:</b>	Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure constructing the concrete base, excavation, backfilling, restoration, any necessary anchors, or electrical inspection fees, and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, specified conduits, meter base, transformer, service panel, fused cutout, fuses, lighting arrestors, photoelectrical control, circuit breakers, contactor, manual switch, ground rods, and ground wires and will consider them incidental to this item of work.
<b>Subsection:</b>	716.04.09 Luminaire.
<b>Revision:</b>	Replace the first sentence with the following: The Department will measure the quantity as each individual unit furnished and installed.
<b>Subsection:</b>	716.04.10 Fused Connector Kits.
<b>Revision:</b>	Replace the first sentence with the following: The Department will measure the quantity as each individual unit furnished and installed.
<b>Subsection:</b>	716.04.13 Junction Box.
<b>Revision:</b>	Replace the subsection title with the following: Electrical Junction Box Type Various.
<b>Subsection:</b>	716.04.13 Junction Box.
<b>Part:</b>	A) Junction Electrical.
<b>Revision:</b>	Rename A) Junction Electrical to the following: A) Electrical Junction Box.
<b>Subsection:</b>	716.04.14 Trenching and Backfilling.
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure excavation, backfilling, underground utility warning tape (if required), the restoration of disturbed areas to original condition, and will consider them incidental to this item of work.

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<b>Subsection:</b>	716.04.18 Remove Lighting.															
<b>Revision:</b>	Replace the paragraph with the following: The Department will measure the quantity as a lump sum for the removal of lighting equipment. The Department will not measure the disposal of all equipment and materials off the project by the contractor. The Department also will not measure the transportation of the materials and will consider them incidental to this item of work.															
<b>Subsection:</b>	716.04.20 Bore and Jack Conduit.															
<b>Revision:</b>	Replace the paragraph with the following: The Department will measure the quantity in linear feet. This item shall include all work necessary for boring and installing conduit under an existing roadway. Construction methods shall be in accordance with Sections 706.03.02, paragraphs 1, 2, and 4.															
<b>Subsection:</b>	716.05 PAYMENT.															
<b>Revision:</b>	Replace items 04810-04811, 20391NS835 and, 20392NS835 under <u>Code</u> , <u>Pay Item</u> , and <u>Pay Unit</u> with the following: <table><tr><td><u>Code</u></td><td><u>Pay Item</u></td><td><u>Pay Unit</u></td></tr><tr><td>04810</td><td>Electrical Junction Box</td><td>Each</td></tr><tr><td>04811</td><td>Electrical Junction Box Type B</td><td>Each</td></tr><tr><td>20391NS835</td><td>Electrical Junction Box Type A</td><td>Each</td></tr><tr><td>20392NS835</td><td>Electrical Junction Box Type C</td><td>Each</td></tr></table>	<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>	04810	Electrical Junction Box	Each	04811	Electrical Junction Box Type B	Each	20391NS835	Electrical Junction Box Type A	Each	20392NS835	Electrical Junction Box Type C	Each
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20392NS835	Electrical Junction Box Type C	Each														
<b>Subsection:</b>	723.02.02 Paint.															
<b>Revision:</b>	Replace sentence with the following: Conform to Section 821.															
<b>Subsection:</b>	723.03 CONSTRUCTION.															
<b>Revision:</b>	Replace bullet 5) with the following: 5) AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims,															
<b>Subsection:</b>	723.03.02 Poles and Bases Installation.															
<b>Revision:</b>	Replace the first sentence with the following: Regardless of the station and offset noted, locate all poles/bases behind the guardrail a minimum of four feet from the front face of the guardrail to the front face of the pole base.															
<b>Subsection:</b>	723.03.02 Poles and Bases Installation.															
<b>Part:</b>	A) Steel Strain and Mastarm Poles Installation															
<b>Revision:</b>	Replace the second paragraph with the following: For concrete base installation, see Section 716.03.02, B), 2), Paragraphs 2-7. Drilled shaft depth shall be based on the soil conditions encountered during drilling and slope condition at the site. Refer to the design chart below:															
<b>Subsection:</b>	723.03.02 Poles and Bases Installation.															
<b>Part:</b>	B) Pedestal or Pedestal Post Installation.															
<b>Revision:</b>	Replace the fourth sentence of the paragraph with the following: For breakaway supports, conform to Section 12 of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.															

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<b>Subsection:</b>	723.03.03 Trenching.
<b>Part:</b>	A) Under Roadway.
<b>Revision:</b>	Add the following after the second sentence: If depths greater than 24 inches are necessary, obtain the Engineer's approval and maintain either required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.
<b>Subsection:</b>	723.03.11 Wiring Installation.
<b>Revision:</b>	Add the following sentence between the fifth and sixth sentences: Provide an extra two feet of loop wire and lead-in past the installed conduit in poles, pedestals, and junction boxes.
<b>Subsection:</b>	723.03.12 Loop Installation.
<b>Revision:</b>	Replace the fourth sentence of the 2nd paragraph with the following: Provide an extra two feet of loop wire and lead-in past the installed conduit in poles, pedestals, and junction boxes.
<b>Subsection:</b>	723.04.02 Junction Box.
<b>Revision:</b>	Replace subsection title with the following: Electrical Junction Box Type Various.
<b>Subsection:</b>	723.04.03 Trenching and Backfilling.
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure excavation, backfilling, underground utility warning tape (if required), the restoration of disturbed areas to original condition, and will consider them incidental to this item of work.
<b>Subsection:</b>	723.04.10 Signal Pedestal.
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, specified conduits, fittings, ground rod, ground wire, backfilling, restoring disturbed areas, or other necessary hardware and will consider them incidental to this item of work.
<b>Subsection:</b>	723.04.15 Loop Saw Slot and Fill.
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure sawing, cleaning and filling induction loop saw slot, loop sealant, backer rod, and grout and will consider them incidental to this item of work.
<b>Subsection:</b>	723.04.16 Pedestrian Detector.
<b>Revision:</b>	Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished, installed and connected to pole/pedestal. The Department will not measure installing R10-3e (with arrow) sign, furnishing and installing mounting hardware for sign and will consider them incidental to this item of work.
<b>Subsection:</b>	723.04.18 Signal Controller- Type 170.
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure constructing the concrete base or mounting the cabinet to the pole, connecting the signal and detectors, excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, or electrical inspection fees and will consider them incidental to this item of work. The Department will also not measure furnishing and connecting the induction of loop amplifiers, pedestrian isolators, load switches, model 400 modem card; furnishing and installing electrical service conductors, specified conduits, anchors, meter base, fused cutout, fuses, ground rods, ground wires and will consider them incidental to this item of work.

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<b>Subsection:</b>	723.04.20 Install Signal Controller - Type 170.
<b>Revision:</b>	Replace the paragraph with the following: The Department will measure the quantity as each individual unit installed. The Department will not measure constructing the concrete base or mounting the cabinet to the pole, connecting the signal and detectors, and excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, or electrical inspection fees and will consider them incidental to this item of work. The Department will also not measure connecting the induction loop amplifiers, pedestrian, isolators, load switches, model 400 modem card; furnishing and installing electrical service conductors, specified conduits, anchors, meter base, fused cutout, fuses, ground rods, ground wires and will consider them incidental to this item of work.
<b>Subsection:</b>	723.04.22 Remove Signal Equipment.
<b>Revision:</b>	Replace the paragraph with the following: The Department will measure the quantity as a lump sum removal of signal equipment. The Department will not measure the return of control equipment and signal heads to the Department of Highways as directed by the District Traffic Engineer. The Department also will not measure the transportation of materials of the disposal of all other equipment and materials off the project by the contractor and will consider them incidental to this item of work.
<b>Subsection:</b>	723.04.28 Install Pedestrian Detector Audible.
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure installing sign R10-3e (with arrow) and will consider it incidental to this item of work.
<b>Subsection:</b>	723.04.29 Audible Pedestrian Detector.
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure furnishing and installing the sign R10-3e (with arrow) and will consider it incidental to this item of work.
<b>Subsection:</b>	723.04.30 Bore and Jack Conduit.
<b>Revision:</b>	Replace the paragraph with the following: The Department will measure the quantity in linear feet. This item shall include all work necessary for boring and installing conduit under an existing roadway. Construction methods shall be in accordance with Sections 706.03.02, paragraphs 1, 2, and 4.
<b>Subsection:</b>	723.04.31 Install Pedestrian Detector.
<b>Revision:</b>	Replace the paragraph with the following: The Department will measure the quantity as each individual unit installed and connected to pole/pedestal. The Department will not measure installing sign R 10-3e (with arrow) and will consider it incidental to this item of work.
<b>Subsection:</b>	723.04.32 Install Mast Arm Pole.
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure arms, signal mounting brackets, anchor bolts, or any other necessary hardware and will consider them incidental to this item of work.
<b>Subsection:</b>	723.04.33 Pedestal Post.
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, conduit, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware and will consider them incidental to this item of work.



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<b>Subsection:</b>	723.04.36 Traffic Signal Pole Base.															
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure excavation, reinforcing steel, anchor bolts, specified conduits, ground rods, ground wires, backfilling, or restoration and will consider them incidental to this item of work.															
<b>Subsection:</b>	723.04.37 Install Signal Pedestal.															
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, specified conduits, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware and will consider them incidental to this item of work.															
<b>Subsection:</b>	723.04.38 Install Pedestal Post.															
<b>Revision:</b>	Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, specified conduits, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware and will consider them incidental to this item of work.															
<b>Subsection:</b>	723.05 PAYMENT.															
<b>Revision:</b>	Replace items 04810-04811, 20391NS835 and, 20392NS835 under <u>Code</u> , <u>Pay Item</u> , and <u>Pay Unit</u> with the following: <table><tr><td><u>Code</u></td><td><u>Pay Item</u></td><td><u>Pay Unit</u></td></tr><tr><td>04810</td><td>Electrical Junction Box</td><td>Each</td></tr><tr><td>04811</td><td>Electrical Junction Box Type B</td><td>Each</td></tr><tr><td>20391NS835</td><td>Electrical Junction Box Type A</td><td>Each</td></tr><tr><td>20392NS835</td><td>Electrical Junction Box Type C</td><td>Each</td></tr></table>	<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>	04810	Electrical Junction Box	Each	04811	Electrical Junction Box Type B	Each	20391NS835	Electrical Junction Box Type A	Each	20392NS835	Electrical Junction Box Type C	Each
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<b>Subsection:</b>	804.01.02 Crushed Sand.															
<b>Revision:</b>	Delete last sentence of the section.															
<b>Subsection:</b>	804.01.06 Slag.															
<b>Revision:</b>	Add subsection and following sentence. Provide blast furnace slag sand where permitted. The Department will allow steel slag sand only in asphalt surface applications.															
<b>Subsection:</b>	804.04 Asphalt Mixtures.															
<b>Revision:</b>	Replace the subsection with the following: Provide natural, crushed, conglomerate, or blast furnace slag sand, with the addition of filler as necessary, to meet gradation requirements. The Department will allow any combination of natural, crushed, conglomerate or blast furnace slag sand when the combination is achieved using cold feeds at the plant. The Engineer may allow other fine aggregates.															
<b>Subsection:</b>	806.03.01 General Requirements.															
<b>Revision:</b>	Replace the second sentence of the paragraph with the following: Additionally, the material must have a minimum solubility of 99.0 percent when tested according to AASHTO T 44 and PG 76-22 must exhibit a minimum recovery of 60 percent, with a J <sub>NR</sub> (nonrecoverable creep compliance) between 0.1 and 0.5, when tested according to AASHTO TP 70.															

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<b>Subsection:</b>	806.03.01 General Requirements.						
<b>Table:</b>	PG Binder Requirements and Price Adjustment Schedule						
<b>Revision:</b>	Replace the Elastic Recovery, % <sup>(3)</sup> (AASHTO T301) and all corresponding values in the table with the following:						
	<u>Test</u>	<u>Specification</u>	<u>100% Pay</u>	<u>90% Pay</u>	<u>80% Pay</u>	<u>70% Pay</u>	<u>50% Pay</u> <sup>(1)</sup>
	MSCR recovery, % <sup>(3)</sup> (AASHTO TP 70)	60 Min.	≥58	56	55	54	<53
<b>Subsection:</b>	806.03.01 General Requirements.						
<b>Table:</b>	PG Binder Requirements and Price Adjustment Schedule						
<b>Superscript:</b>	(3)						
<b>Revision:</b>	Replace <sup>(3)</sup> with the following: Perform testing at 64°C.						
<b>Subsection:</b>	813.04 Gray Iron Castings.						
<b>Revision:</b>	Replace the reference to "AASHTO M105" with "ASTM A48".						
<b>Subsection:</b>	813.09.02 High Strength Steel Bolts, Nuts, and Washers.						
<b>Number:</b>	A) Bolts.						
<b>Revision:</b>	Delete first paragraph and "Hardness Number" Table. Replace with the following: A) Bolts. Conform to ASTM A325 (AASHTO M164) or ASTM A490 (AASHTO 253) as applicable.						
<b>Subsection:</b>	814.04.02 Timber Guardrail Posts.						
<b>Revision:</b>	Third paragraph, replace the reference to "AWPA C14" with "AWPA U1, Section B, Paragraph 4.1".						
<b>Subsection:</b>	814.04.02 Timber Guardrail Posts.						
<b>Revision:</b>	Replace the first sentence of the fourth paragraph with the following: Use any of the species of wood for round or square posts covered under AWPA U1.						
<b>Subsection:</b>	814.04.02 Timber Guardrail Posts.						
<b>Revision:</b>	Fourth paragraph, replace the reference to "AWPA C2" with "AWPA U1, Section B, Paragraph 4.1".						
<b>Subsection:</b>	814.04.02 Timber Guardrail Posts.						
<b>Revision:</b>	Delete the second sentence of the fourth paragraph.						
<b>Subsection:</b>	814.05.02 Composite Plastic.						
<b>Revision:</b>	1) Add the following to the beginning of the first paragraph: Select composite offset blocks conforming to this section and assure blocks are from a manufacturer included on the Department's List of Approved Materials. 2) Delete the last paragraph of the subsection.						
<b>Subsection:</b>	816.07.02 Wood Posts and Braces.						
<b>Revision:</b>	First paragraph, replace the reference to "AWPA C5" with "AWPA U1, Section B, Paragraph 4.1".						
<b>Subsection:</b>	816.07.02 Wood Posts and Braces.						
<b>Revision:</b>	Delete the second sentence of the first paragraph.						
<b>Subsection:</b>	818.07 Preservative Treatment.						
<b>Revision:</b>	First paragraph, replace all references to "AWPA C14" with "AWPA U1, Section A".						

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<b>Subsection:</b>	834.14 Lighting Poles.
<b>Revision:</b>	Replace the first sentence with the following: Lighting pole design shall be in accordance with loading and allowable stress requirements of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims, with the exception of the following: The Cabinet will waive the requirement stated in the first sentence of Section 5.14.6.2 – Reinforced Holes and Cutouts for high mast poles (only). The minimum diameter at the base of the pole shall be 22 inches for high mast poles (only).
<b>Subsection:</b>	834.14.03 High Mast Poles.
<b>Revision:</b>	Remove the second and fourth sentence from the first paragraph.
<b>Subsection:</b>	834.14.03 High Mast Poles.
<b>Revision:</b>	Replace the third paragraph with the following: Provide calculations and drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky.
<b>Subsection:</b>	834.14.03 High Mast Poles.
<b>Revision:</b>	Replace paragraph six with the following: Provide a pole section that conforms to ASTM A 595 grade A with a minimum yield strength of 55 KSI or ASTM A 572 with a minimum yield strength of 55 KSI. Use tubes that are round or 16 sided with a four inch corner radius, have a constant linear taper of .144 in/ft and contain only one longitudinal seam weld. Circumferential welded tube butt splices and laminated tubes are not permitted. Provide pole sections that are telescopically slip fit assembled in the field to facilitate inspection of interior surface welds and the protective coating. The minimum length of the telescopic slip splices shall be 1.5 times the inside diameter of the exposed end of the female section. Use longitudinal seam welds as commended in Section 5.15 of the AASHTO 2013 Specifications. The thickness of the transverse base shall not be less than 2 inches. Plates shall be integrally welded to the tubes with a telescopic welded joint or a full penetration groove weld with backup bar. The handhole cover shall be removable from the handhole frame. One the frame side opposite the hinge, provide a mechanism on the handhole cover/frame to place the Department's standard padlock as specified in Section 834.25. The handhole frame shall have two stainless studs installed opposite the hinge to secure the handhole cover to the frame which includes providing stainless steel wing nuts and washers. The handhole cover shall be manufactured from 0.25 inch thick galvanized steel (ASTM A 153) and have a neoprene rubber gasket that is permanently secured to the handhole frame to insure weather-tight protection. The hinge shall be manufactured from 7-guage stainless steel to provide adjustability to insure weather-tight fit for the cover. The minimum clear distance between the transverse plate and the bottom opening of the handhole shall not be less than the diameter of the bottom tube of the pole but needs to be at least 15 inches. Provide products that are hot-dip galvanized to the requirements of either ASTM A123 (fabricated products) or ASTM A 153 (hardware items).
<b>Subsection:</b>	834.16 ANCHOR BOLTS.
<b>Revision:</b>	Insert the following sentence at the beginning of the paragraph: The anchor bolt design shall follow the NCHRP Report 494 Section 2.4 and NCHRP 469 Appendix A Specifications.

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<b>Subsection:</b>	834.17.01 Conventional.
<b>Revision:</b>	Add the following sentence after the second sentence: Provide a waterproof sticker mounted on the bottom of the housing that is legible from the ground and indicates the wattage of the fixture by providing the first two numbers of the wattage.
<b>Subsection:</b>	834.21.01 Waterproof Enclosures.
<b>Revision:</b>	Replace the last five sentences in the second paragraph with the following sentences: Provide a cabinet door with a louvered air vent, filter-retaining brackets and an easy to clean metal filter. Provide a cabinet door that is keyed with a factory installed standard no. 2 corbin traffic control key. Provide a light fixture with switch and bulb. Use a 120-volt fixture and utilize a L.E.D. bulb (equivalent to 60 watts minimum). Fixture shall be situated at or near the top of the cabinet and illuminate the contents of the cabinet. Provide a 120 VAC GFI duplex receptacle in the enclosure with a separate 20 amp breaker.
<b>Subsection:</b>	835.07 Traffic Poles.
<b>Revision:</b>	Replace the first sentence of the first paragraph with the following: Pole diameter and wall thickness shall be calculated in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
<b>Subsection:</b>	835.07 Traffic Poles.
<b>Revision:</b>	*Replace the first sentence of the fourth paragraph with the following: Ensure transverse plates have a thickness $\geq 2$ inches. *Add the following sentence to the end of the fourth paragraph: The bottom pole diameter shall not be less than 16.25 inches.
<b>Subsection:</b>	835.07 Traffic Poles.
<b>Revision:</b>	Replace the third sentence of the fifth paragraph with the following: For anchor bolt design, pole forces shall be positioned in such a manner to maximize the force on any individual anchor bolt regardless of the actual anchor bolt orientation with the pole.
<b>Subsection:</b>	835.07 Traffic Poles.
<b>Revision:</b>	Replace the first and second sentence of the sixth paragraph with the following: The pole handhole shall be 25 inches by 6.5 inches. The handhole cover shall be removable from the handhole frame. On the frame side opposite the hinge, provide a mechanism on the handhole cover/frame to place the Department's standard padlock as specified in Section 834.25. The handhole frame shall have two stainless studs installed opposite the hinge to secure the handhole cover to the frame which includes providing stainless steel wing nuts and washers. The handhole cover shall be manufactured from 0.25 inch thick galvanized steel (ASTM 153) and have a neoprene rubber gasket that is permanently secured to the handhole frame to insure weather-tight protection. The hinge shall be manufactured from 7 gauge stainless steel to provide adjustability to insure a weather-tight fit for the cover. The minimum clear distance between the transverse plate and the bottom opening of the handhole shall not be less than the diameter of the bottom tube but needs to be at least 12 inches.

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<b>Subsection:</b>	835.07 Traffic Poles.		
<b>Revision:</b>	*Replace the first sentence of the last paragraph with the following: Provide calculations and drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky. *Replace the third sentence of the last paragraph with the following: All tables referenced in 835.07 are found in the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.		
<b>Subsection:</b>	835.07.01 Steel Strain Poles.		
<b>Revision:</b>	Replace the second sentence of the second paragraph with the following: The detailed analysis shall be certified by a Professional Engineer licensed in the Commonwealth of Kentucky.		
<b>Subsection:</b>	835.07.01 Steel Strain Poles.		
<b>Revision:</b>	Replace number 7. after the second paragraph with the following: 7. Fatigue calculations should be shown for all fatigue related connections. Provide the corresponding detail, stress category and example from table 11.9.3.1-1.		
<b>Subsection:</b>	835.07.02 Mast Arm Poles.		
<b>Revision:</b>	Replace the second sentence of the fourth paragraph with the following: The detailed analysis shall be certified by a Professional Engineer licensed in the Commonwealth of Kentucky.		
<b>Subsection:</b>	835.07.02 Mast Arm Poles.		
<b>Revision:</b>	Replace number 7) after the fourth paragraph with the following: 7) Fatigue calculations should be shown for all fatigue related connections. Provide the corresponding detail, stress category and example from table 11.9.3.1-1.		
<b>Subsection:</b>	835.07.03 Anchor Bolts.		
<b>Revision:</b>	Add the following to the end of the paragraph: There shall be two steel templates (one can be used for the headed part of the anchor bolt when designed in this manner) provided per pole. Templates shall be contained within a 26.5 inch diameter. All templates shall be fully galvanized (ASTM A 153).		
<b>Subsection:</b>	835.16.05 Optical Units.		
<b>Revision:</b>	Replace the 3rd paragraph with the following: The list of certified products can be found on the following website: <a href="http://www.intertek.com">http://www.intertek.com</a> .		
<b>Subsection:</b>	835.19.01 Pedestrian Detector Body.		
<b>Revision:</b>	Replace the first sentence with the following: Provide a four holed pole mounted aluminum rectangular housing that is compatible with the pedestrian detector.		
<b>Subsection:</b>	843.01.01 Geotextile Fabric.		
<b>Table:</b>	TYPE I FABRIC GEOTEXTILES FOR SLOPE PROTECTION AND CHANNEL LINING		
<b>Revision:</b>	Add the following to the chart:		
	<u>Property</u>	<u>Minimum Value<sup>(1)</sup></u>	<u>Test Method</u>
	CBR Puncture (lbs)	494	ASTM D6241
	Permittivity (1/s)	0.7	ASTM D4491

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<b>Subsection:</b>	843.01.01 Geotextile Fabric.		
<b>Table:</b>	TYPE II FABRIC GEOTEXTILES FOR UNDERDRAINS		
<b>Revision:</b>	Add the following to the chart:		
	<u>Property</u>	<u>Minimum Value<sup>(1)</sup></u>	<u>Test Method</u>
	CBR Puncture (lbs)	210	ASTM D6241
	Permittivity (1/s)	0.5	ASTM D4491
<b>Subsection:</b>	843.01.01 Geotextile Fabric.		
<b>Table:</b>	TYPE III FABRIC GEOTEXTILES FOR SUBGRADE OR EMBANKMENT STABILIZATION		
<b>Revision:</b>	Add the following to the chart:		
	<u>Property</u>	<u>Minimum Value<sup>(1)</sup></u>	<u>Test Method</u>
	CBR Puncture (lbs)	370	ASTM D6241
	Permittivity (1/s)	0.05	ASTM D4491
<b>Subsection:</b>	843.01.01 Geotextile Fabric.		
<b>Table:</b>	TYPE IV FABRIC GEOTEXTILES FOR EMBANKMENT DRAINAGE BLANKETS AND PAVEMENT EDGE DRAINS		
<b>Revision:</b>	Add the following to the chart:		
	<u>Property</u>	<u>Minimum Value<sup>(1)</sup></u>	<u>Test Method</u>
	CBR Puncture (lbs)	309	ASTM D6241
	Permittivity (1/s)	0.5	ASTM D4491
<b>Subsection:</b>	843.01.01 Geotextile Fabric.		
<b>Table:</b>	TYPE V HIGH STRENGTH GEOTEXTILE FABRIC		
<b>Revision:</b>	Make the following changes to the chart:		
	<u>Property</u>	<u>Minimum Value<sup>(1)</sup></u>	<u>Test Method</u>
	CBR Puncture (lbs)	618	ASTM D6241
	Apparent Opening Size	U.S. #40 <sup>(3)</sup>	ASTM D4751
	<sup>(3)</sup> Maximum average roll value.		

## **SPECIAL NOTE FOR PORTABLE CHANGEABLE MESSAGE SIGNS**

This Special Note will apply when indicated on the plans or in the proposal.

**1.0 DESCRIPTION.** Furnish, install, operate, and maintain variable message signs at the locations shown on the plans or designated by the Engineer. Remove and retain possession of variable message signs when they are no longer needed on the project.

## **2.0 MATERIALS.**

**2.1 General.** Use LED Variable Message Signs Class I, II, or III, as appropriate, from the Department's List of Approved Materials.

Unclassified signs may be submitted for approval by the Engineer. The Engineer may require a daytime and nighttime demonstration. The Engineer will make a final decision within 30 days after all required information is received.

### **2.2 Sign and Controls.** All signs must:

- 1) Provide 3-line messages with each line being 8 characters long and at least 18 inches tall. Each character comprises 35 pixels.
- 2) Provide at least 40 preprogrammed messages available for use at any time. Provide for quick and easy change of the displayed message; editing of the message; and additions of new messages.
- 3) Provide a controller consisting of:
  - a) Keyboard or keypad.
  - b) Readout that mimics the actual sign display. (When LCD or LCD type readout is used, include backlighting and heating or otherwise arrange for viewing in cold temperatures.)
  - c) Non-volatile memory or suitable memory with battery backup for storing pre-programmed messages.
  - d) Logic circuitry to control the sequence of messages and flash rate.
- 4) Provide a serial interface that is capable of supporting complete remote control ability through land line and cellular telephone operation. Include communication software capable of immediately updating the message, providing complete sign status, and allowing message library queries and updates.
- 5) Allow a single person easily to raise the sign to a satisfactory height above the pavement during use, and lower the sign during travel.
- 6) Be Highway Orange on all exterior surfaces of the trailer, supports, and controller cabinet.
- 7) Provide operation in ambient temperatures from -30 to + 120 degrees Fahrenheit during snow, rain and other inclement weather.
- 8) Provide the driver board as part of a module. All modules are interchangeable, and have plug and socket arrangements for disconnection and reconnection. Printed circuit boards associated with driver boards have a conformable coating to protect against moisture.
- 9) Provide a sign case sealed against rain, snow, dust, insects, etc. The lens is UV stabilized clear plastic (polycarbonate, acrylic, or other approved material) angled to prevent glare.
- 10) Provide a flat black UV protected coating on the sign hardware, character PCB, and appropriate lens areas.
- 11) Provide a photocell control to provide automatic dimming.

- 12) Allow an on-off flashing sequence at an adjustable rate.
- 13) Provide a sight to aim the message.
- 14) Provide a LED display color of approximately 590 nm amber.
- 15) Provide a controller that is password protected.
- 16) Provide a security device that prevents unauthorized individuals from accessing the controller.
- 17) Provide the following 3-line messages preprogrammed and available for use when the sign unit begins operation:

/KEEP/RIGHT/⇒⇒⇒/	/MIN/SPEED/**MPH/
/KEEP/LEFT/⇐⇐⇐/	/ICY/BRIDGE/AHEAD/ /ONE
/LOOSE/GRAVEL/AHEAD/	LANE/BRIDGE/AHEAD/
/RD WORK/NEXT/**MILES/	/ROUGH/ROAD/AHEAD/
/TWO WAY/TRAFFIC/AHEAD/	/MERGING/TRAFFIC/AHEAD/
/PAINT/CREW/AHEAD/	/NEXT/***/MILES/
/REDUCE/SPEED/**MPH/	/HEAVY/TRAFFIC/AHEAD/
/BRIDGE/WORK/***() FT/	/SPEED/LIMIT/**MPH/
/MAX/SPEED/**MPH/	/BUMP/AHEAD/
/SURVEY/PARTY/AHEAD/	/TWO/WAY/TRAFFIC/

\*Insert numerals as directed by the Engineer.  
Add other messages during the project when required by the Engineer.

2.3 Power.

- 1) Design solar panels to yield 10 percent or greater additional charge than sign consumption. Provide direct wiring for operation of the sign or arrow board from an external power source to provide energy backup for 21 days without sunlight and an on-board system charger with the ability to recharge completely discharged batteries in 24 hours.

**3.0 CONSTRUCTION.** Furnish and operate the variable message signs as designated on the plans or by the Engineer. Ensure the bottom of the message panel is a minimum of 7 feet above the roadway in urban areas and 5 feet above in rural areas when operating. Use Class I, II, or III signs on roads with a speed limit less than 55 mph. Use Class I or II signs on roads with speed limits 55 mph or greater.

Maintain the sign in proper working order, including repair of any damage done by others, until completion of the project. When the sign becomes inoperative, immediately repair or replace the sign. Repetitive problems with the same unit will be cause for rejection and replacement.

Use only project related messages and messages directed by the Engineer, unnecessary messages lessen the impact of the sign. Ensure the message is displayed in either one or 2 phases with each phase having no more than 3 lines of text. When no message is needed, but it is necessary to know if the sign is operable, flash only a pixel.

When the sign is not needed, move it outside the clear zone or where the Engineer directs. Variable Message Signs are the property of the Contractor and shall be removed from the project when no longer needed. The Department will not assume ownership of these signs.

**4.0 MEASUREMENT.** The final quantity of Variable Message Sign will be



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the actual number of individual signs acceptably furnished and operated during the project. The Department will not measure signs replaced due to damage or rejection.

**5.0 PAYMENT.** The Department will pay for the Variable Message Signs at the unit price each. The Department will not pay for signs replaced due to damage or rejection. Payment is full compensation for furnishing all materials, labor, equipment, and service necessary to, operate, move, repair, and maintain or replace the variable message signs. The Department will make payment for the completed and accepted quantities under the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
02671	Portable Changeable Message Sign	Each

Effective June 15, 2012

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### **SPECIAL NOTE FOR ROADBED STABILIZATION AT BRIDGE ENDS**

This Special Note will apply where indicated on the plans or in the proposal. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

**1.0 DESCRIPTION.** Due to the wet and yielding embankments commonly encountered at bridge ends, undercut the existing roadbed within the limits the Contract specifies and backfill.

### **2.0 MATERIALS.**

**2.1 Geotextile Fabric.** Furnish Type III fabric conforming to Section 843.

**3.0 CONSTRUCTION.** After removing the existing pavement and base, undercut the existing roadbed under the traffic lanes and shoulders as the Engineer directs. The minimum undercut shall be one foot, except undercut depth may be reduced where rock embankment constructed principally of limestone is encountered. Place geotextile fabric in the bottom and against the sides and ends of the undercut. The Department will not require a minimum lap between adjacent sheets of geotextile fabric for the longitudinal joint under the pavement centerline. Backfill the undercut with one or more of the following materials;

- 1) Crushed limestone size No. 1, 2, 23, or 57; or
- 2) Layered composition of several limestone sizes, with larger sizes on the bottom.

Use Dense Graded Aggregate (DGA), Crushed Stone Base (CSB), or Stabilized Aggregate Base (SAB) in the top 4 inches, and only in the top 4 inches, of the backfill.

Place geotextile fabric between the coarse backfill material and the 4-inch upper layer.

Compact the backfill material by "walking down" with equipment, or other methods the Engineer approves. See attached drawing for details of backfill placement and drainage.

Waste all removed materials, not used for purposes the Contract or Engineer specifies or permits, off the right-of-way at no expense to the Department.

### **4.0 MEASUREMENT.**

**4.1 Removing Pavement.** The Department will measure the quantity in square yards. The Department will consider the pavement to include existing pavement, existing asphalt patching, and existing DGA base.

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**4.2 Roadway Excavation.** The Department will measure the quantity in cubic yards.

**4.3 Backfilling Undercut.** The Department will measure the quantity in cubic yards. The Department will not measure coarse aggregate for payment and will consider it incidental to this item of work.

**4.4 Perforated Pipe.** The Department will measure the quantity in linear feet.

**4.5 Non-Perforated Pipe.** The Department will measure the quantity in linear feet.

**4.6 Geotextile Fabric, Type III.** The Department will measure the quantity in square yards.

**5.0 PAYMENT.** The Department will make payment for the completed and accepted quantities under the following:

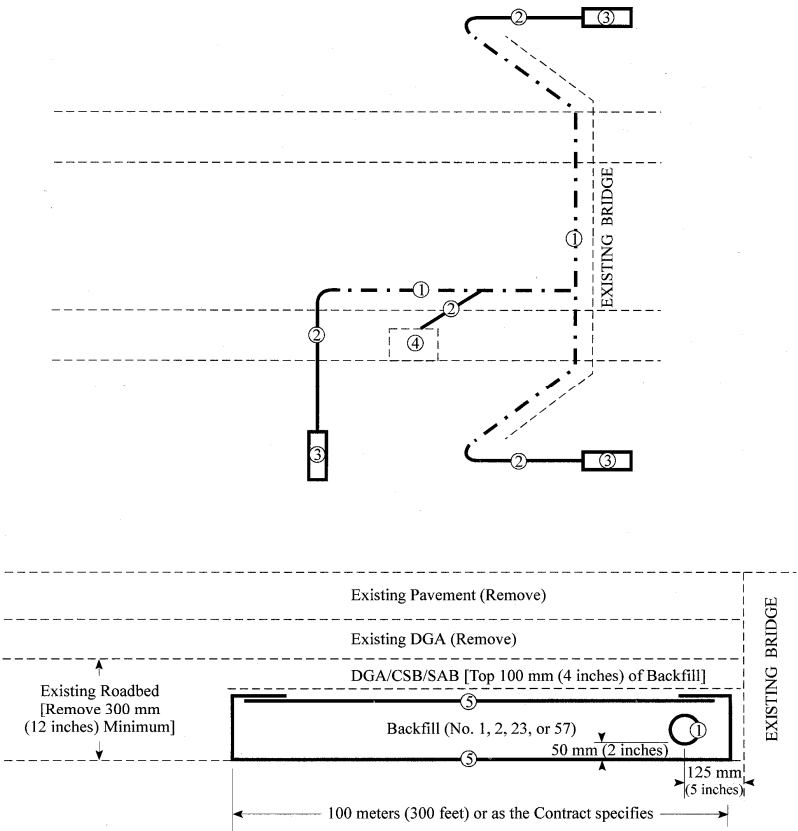
<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
02091	Removing Pavement	Square Yard
01000	Perforated Pipe - 4 inches	Linear Foot
01010	Non-Perforated Pipe, 4 inches	Linear Foot
02235	Backfilling Undercut	Cubic Yard
02598	Fabric - Geotextile Type III	Square Yard

The Department will consider payment as full compensation for all work required in this note.

June 15, 2012

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BRIDGE END DRAINAGE AND STABILIZATION  
(DETAILS)



**NOTES**

Contrary to Section 705 of the Standard Specifications, use only coarse aggregate for trench backfill.

Slope all pipe to drain to the outside. Provide a 1:24 (1/2":1') or greater slope for the outlet pipe.

The Department may require additional transverse drains within the stabilization area.

**LEGEND**

- ① 100-mm (4-inch) Perforated Pipe
- ② 100-mm (4-inch) Non-perforated Pipe
- ③ Perforated Pipe Headwall
- ④ Existing Box Inlet
- ⑤ Geotextile Fabric, Type III

## **SPECIAL NOTE FOR ROCK BLASTING**

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

**1.0 DESCRIPTION.** This work consists of fracturing rock and constructing stable final rock cut faces using presplit blasting and production blasting techniques.

**2.0 MATERIALS.** Deliver, store, and use explosives according to the manufacturer's recommendations and applicable laws. Do not use explosives outside their recommended use date. Verify date of manufacture and provide copies of the technical data sheets (TDS) and material safety data sheets (MSDS) to the Engineer. Explosives and initiating devices include, but are not necessarily limited to, dynamite and other high explosives, slurries, water gels, emulsions, blasting agents, initiating explosives, detonators, blasting caps, and detonating cord.

**3.0 CONSTRUCTION.** Furnish copies or other proof of all-applicable permits and licenses. Comply with Federal, State, and local regulations on the purchase, transportation, storage, and use of explosive material. Regulations include but are not limited to the following:

- 1) KRS 351.310 through 351.9901.
- 2) 805 KAR 4:005 through 4:165
- 3) Applicable rules and regulations issued by the Office of Mine Safety and Licensing.
- 4) Safety and health. OSHA, 29 CFR Part 1926, Subpart U.
- 5) Storage, security, and accountability. Bureau of Alcohol, Tobacco, and Firearms (BATF), 27 CFR Part 181.
- 6) Shipment. DOT, 49 CFR Parts 171-179, 390-397.

**3.1 Blaster-in-Charge.** Designate in writing a blaster-in-charge and any proposed alternates for the position. Submit documentation showing the blaster-in-charge, and alternates, have a valid Kentucky blaster's license. Ensure the blaster-in-charge or approved alternate is present at all times during blasting operations.

**3.2 Blasting Plans.** Blasting plans and reports are for quality control and record keeping purposes. Blasting reports are to be signed by the blaster-in-charge or the alternate blaster-in-charge. The general review and acceptance of blasting plans does not relieve the Contractor of the responsibility whatsoever for conformance to regulations or for obtaining the required results. All blasting plans shall be submitted to the Engineer. The Engineer will be responsible for submitting the plan to the Central Office Division of Construction and the Division of Mine Reclamation and Enforcement, Explosives and Blasting Branch at the following address: 2 Hudson Hollow, Frankfort, Kentucky, 40601.

**A) General Blasting Plan.** Submit a general blasting plan for acceptance at least 15 working days before drilling operations begin. Include, as a minimum, the following safety and procedural details:

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- 1) Working procedures and safety precautions for storing, transporting, handling, detonating explosives. Include direction on pre and post blast audible procedures, methods of addressing misfires, and methods of addressing inclement weather, including lightning.
- 2) Proposed product selection for both dry and wet holes. Furnish Manufacturer's TDS and MSDS for all explosives, primers, initiators, and other blasting devices.
- 3) Proposed initiation and delay methods.
- 4) Proposed format for providing all the required information for the site specific blasting shot reports.

**B) Preblast Meeting.** Prior to drilling operations, conduct a preblast meeting to discuss safety and traffic control issues and any site specific conditions that will need to be addressed. Ensure, at a minimum, that the Engineer or lead inspector, Superintendent, blaster-in-charge, and all personnel involved in the blasting operation are present. Site specific conditions include blast techniques; communication procedures; contingency plans and equipment for dealing with errant blast material. The conditions of the General Blasting plan will be discussed at this meeting. Record all revisions and additions made to the blasting plan and obtain written concurrence by the blaster-in-charge. Provide a copy of the signed blast plan to the Engineer along with the sign in sheet from the preblast meeting.

**3.3 Preblast Condition Survey and Vibration Monitoring and Control.** Before blasting, arrange for a preblast condition survey of nearby buildings, structures, or utilities, within 500 feet of the blast or that could be at risk from blasting damage. Provide the Engineer a listing of all properties surveyed and any owners denying entry or failing to respond. Notify the Engineer and occupants of buildings at risk at least 24 hours before blasting.

Limit ground vibrations and airblast to levels that will not exceed limits of 805 KAR 4:005 through 4:165. More restrictive levels may be specified in the Contract.

Size all blast designs based on vibration, distance to nearest building or utility, blast site geometry, atmospheric conditions and other factors. Ground vibrations are to be controlled according to the blasting standards and scaled distance formulas in 805 KAR 4:020 or by the use of seismographs as allowed in 805 KAR 4:030. The Department will require seismographs at the nearest allowable location to the protected site when blasting occurs within 500 feet of buildings, structures, or utilities.

**3.4 Blasting.** Drill and blast at the designated slope lines according to the blasting plan. Perform presplitting to obtain smooth faces in the rock and shale formations. Perform the presplitting before blasting and excavating the interior portion of the specified cross section at any location. The Department may allow blasting for fall benches and haul roads prior to presplitting when blasting is a sufficient distance from the final slope and results are satisfactory to the Engineer. Use the types of explosives and blasting accessories necessary to obtain the required results.

Free blast holes of obstructions for their entire depth. Place charges without caving the blast hole walls. Stem the upper portion of all blast holes with dry sand or other granular material passing the 3/8-inch sieve. Dry drill cuttings are acceptable for stemming when blasts are more than 800 feet from the nearest dwelling.

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Stop traffic during blasting operations when blasting near any road and ensure traffic does not pass through the Danger Zone. The blaster-in-charge will define the Danger Zone prior to each blast. Ensure traffic is stopped outside the Danger Zone, and in no case within 800 feet of the blast location.

Following a blast, stop work in the entire blast area, and check for misfires before allowing worker to return to excavate the rock.

Remove or stabilize all cut face rock that is loose, hanging, or potentially dangerous. Leave minor irregularities or surface variations in place if they do not create a hazard. Drill the next lift only after the cleanup work and stabilization work is complete.

When blasting operations cause fracturing of the final rock face, repair or stabilize it in an approved manner at no cost to the Department.

Halt blasting operations in areas where any of the following occur:

- 1) Slopes are unstable;
- 2) Slopes exceed tolerances or overhangs are created;
- 3) Backslope damage occurs;
- 4) Safety of the public is jeopardized;
- 5) Property or natural features are endangered;
- 6) Fly rock is generated; or
- 7) Excessive ground or airblast vibrations occur in an area where damage to buildings, structures, or utilities is possible.
- 8) The Engineer determines that materials have become unsuitable for blasting

Blasting operations may continue at a reasonable distance from the problem area or in areas where the problems do not exist. Make the necessary modifications to the blasting operations and perform a test blast to demonstrate resolution of the problem.

**A) Drill Logs.** Maintain a layout drawing designating hole numbers with corresponding drill logs and provide a copy of this information to the blaster prior to loading the hole. Ensure the individual hole logs completed by the driller(s) show their name; date drilled; total depth drilled; and depths and descriptions of significant conditions encountered during drilling that may affect loading such as water, voids, changes in rock type.

**B) Presplitting.** Conduct presplitting operations in conformance with Subsection 204.03.04 of the Standard Specifications for Road and Bridge Construction.

**3.5 Shot Report.** Maintain all shot reports on site for review by the Department. Within one day after a blast, complete a shot report according to the record keeping requirements of 805 KAR 4:050. Include all results from airblast and seismograph monitoring.

**3.6 Unacceptable Blasting.** When unacceptable blasting occurs, the Department will halt all blasting operations. Blasting will not resume until the Department completes its investigation and all concerns are addressed. A blast is unacceptable when it results in fragmentation beyond the final rock face, fly rock, excessive vibration or airblast, overbreak, damage to the final rock face or overhang. Assume the cost for all resulting damages to private and public property and hold the Department harmless.

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When an errant blast or fly rock causes damage to or blocks a road or conveyance adjacent to the roadway, remove all debris from the roadway as quickly as practicable and perform any necessary repairs. Additionally, when specified in the Contract, the Department will apply a penalty.

Report all blasting accidents to the Division of Mine Reclamation and Enforcement, Explosives and Blasting Branch at 502-564-2340.

**4.0 MEASUREMENT AND PAYMENT.** The Department will not measure this work for payment and will consider all items contained in this note to be incidental to either Roadway Excavation or Embankment-in-Place, as applicable. However, if the Engineer directs in writing slope changes, then the Department will pay for the second presplitting operation as Extra Work.

The Department will measure for payment material lying outside the typical section due to seams, broken formations, or earth pockets, including any earth overburden removed with this material, only when the work is performed under authorized adjustments.

The Department will not measure for payment any extra material excavated because of the drill holes being offset outside the designated slope lines.

The Department will not measure for payment any material necessary to be removed due to the inefficient or faulty blasting practices.

June 15, 2012



## **SPECIAL NOTE FOR TURF REINFORCING MAT**

**1.0 DESCRIPTION.** Install turf reinforcement mat at locations specified in the Contract or as the Engineer directs. Section references herein are to the Department's 2008 Standard Specifications for Road and Bridge Construction.

### **2.0 MATERIALS.**

**2.1 Turf Reinforcement Mat (TRM).** Use a Turf Reinforcement Mat defined as permanent rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh and/or other elements, processed into a three-dimensional matrix of sufficient thickness and from the Department's List of Approved Materials. Mats must be 100% UV stabilized materials. For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting exclusively. Ensure product labels clearly show the manufacturer or supplier name, style name, and roll number. Ensure labeling, shipment and storage follows ASTM D-4873. The Department will require manufacturer to provide TRMs that are machine constructed web of mechanically or melt bonded nondegradable fibers entangled to form a three dimensional matrix. The Department will require all long term performance property values in table below to be based on non degradable portion of the matting alone. Approved methods include polymer welding, thermal or polymer fusion, or placement of fibers between two high strength biaxially oriented nets mechanically bound by parallel stitching with polyolefin thread. Ensure that mats designated in the plans as Type 4 mats, are not to be manufactured from discontinuous or loosely held together by stitching or glued netting or composites. Type 4 mats shall be composed of geosynthetic matrix that exhibits a very high interlock and reinforcement capacities with both soil and root systems and with high tensile modulus. The Department will require manufacturer to use materials chemically and biologically inert to the natural soil environments conditions. Ensure the blanket is smolder resistant without the use of chemical additives. When stored, maintain the protective wrapping and elevate the mats off the ground to protect them from damage. The Department will not specify these materials for use in heavily acidic coal seam areas or other areas with soil problems that would severally limit vegetation growth.

- A) Dimensions. Ensure TRMs are furnished in strips with a minimum width of 4 feet and length of 50 feet.
- B) Weight. Ensure that all mat types have a minimum mass per unit area of 7 ounces per square yard according to ASTM D 6566.
- C) Performance Testing: The Department will require AASHTO's NTPEP index testing. The Department will also require the manufacturer to perform internal MARV testing at a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory for tensile strength, tensile elongation, mass per unit area, and thickness once every 24,000 yds of production or whatever rate is required to ensure 97.7% confidence under ASTM D4439& 4354. The Department will require Full scale testing for slope and channel applications shear stress shall be done under ASTM D 6459, ASTM D 6460-07 procedures.

### **2.2 Classifications**

The basis for selection of the type of mat required will be based on the long term shear stress level of the mat of the channel in question or the degree of slope to protect and will be designated in the contract. The Type 4 mats are to be used at structural backfills protecting critical

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structures, utility cuts, areas where vehicles may be expected to traverse the mat, channels with large heavy drift, and where higher factors of safety, very steep slopes and/or durability concerns are needed as determined by project team and designer and will be specified in the plans by designer.

Turf Reinforcement Matting					
Properties <sup>1</sup>	Type 1	Type 2	Type 3	Type 4	Test Method
Minimum tensile Strength lbs/ft	125	150	175	3000 by 1500	ASTM D6818 <sup>2</sup>
UV stability (minimum % tensile retention)	80	80	80	90	ASTM D4355 <sup>3</sup> (1000-hr exposure)
Minimum thickness (inches)	0.25	0.25	0.25	0.40	ASTM D6525
Slopes applications	2H:1V or flatter	1.5H:1V or flatter	1H:1V or flatter	1 H: 1V or greater	
Shear stress lbs/ft <sup>2</sup> Channel applications	6.0 <sup>4</sup>	8.0 <sup>4</sup>	10.0 <sup>4</sup>	12.0 <sup>4</sup>	ASTM D6459 ASTM D6460-07

<sup>1</sup> For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting alone.

<sup>2</sup>Minimum Average Roll Values for tensile strength of sample material machine direction.

<sup>3</sup>Tensile Strength percentage retained after stated 1000 hr duration of exposure under ASTM D4355 testing. Based on nondegradable components exclusively.

<sup>4</sup>Maximum permissible shear design values based on short-term (0.5 hr) vegetated data obtained by full scale flume testing ASTM D6459, D6460-07. Based on nondegradable components exclusively. Testing will be done at Independent Hydraulics Facility such as Colorado State University hydraulics laboratory, Utah State University hydraulics laboratory, Texas Transportation Institute (TTI) hydraulics and erosion control laboratory.

## 2.3 Quality Assurance Sampling, Testing, and Acceptance

- A) Provide TRM listed on the Department's List of Approved Materials. Prior to inclusion on the LAM, the manufacturer of TRM must meet the physical and performance criteria as outlined in the specification and submit a Letter Certifying compliance of the product under the above ASTM testing procedures and including a copy of report from Full Scale Independent Hydraulics Facility that Fully Vegetated Shear Stress meets shear stress requirements tested under D6459 and D6460-07.
- B) Contractors will provide a Letter of Certification from Manufacturer stating the product name, manufacturer, and that the product MARV product unit testing results meets Department criteria. Provide Letters once per project and for each product.
- C) Acceptance shall be in accordance with ASTM D-4759 based on testing performed by a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory using Procedure A of ASTM D-4354.

Current mats meeting the above criteria are shown on the Department’s List of Approved Materials.

**2.4 Fasteners.** When the mat manufacturer does not specify a specific fastener, use steel wire U-shaped staples with a minimum diameter of 0.09 inches (11 gauge), a minimum width of one inch and a minimum length of 12 inches. Use a heavier gauge when working in rocky or clay soils and longer lengths in sandy soils as directed by Engineer or Manufacturer’s Representative. Provide staples with colored tops when requested by the Engineer.

**3.0 CONSTRUCTION.** When requested by the Engineer, provide a Manufacturer’s Representative on-site to oversee and approve the initial installation of the mat. When requested by the Engineer, provide a letter from the Manufacturer approving the installation. When there is a conflict between the Department’s criteria and the Manufacturer’s criteria, construct using the more restrictive. The Engineer and Manufacturer’s Representative must approve all alternate installation methods prior to execution. Construct according to the Manufacturer’s recommendations and the following as minimum installation technique:

**3.1 Site Preparation.** Grade areas to be treated with matting and compact. Remove large rocks, soil clods, vegetation, roots, and other sharp objects that could keep the mat from intimate contact with subgrade. Prepare seedbed by loosening the top 2 to 3 inch of soil.

**3.2 Installation.** Install mats according to Standard Drawing Sepias “Turf Mat Channel Installation” and “Turf Mat Slope Installation.” Install mats at the specified elevation and alignment. Anchor the mats with staples with a minimum length of 12 inches. Use longer anchors for installations in sandy, loose, or wet soils as directed by the Engineer or Manufacturer’s Representative. The mat should be in direct contact with the soil surface.

**4.0 MEASUREMENT.** The Department will measure the quantity of Turf Reinforcement Mat by the square yard of surface covered. The Department will not measure preparation of the bed, providing a Manufacturer’s Representative, topsoil, or seeding for payment and will consider them incidental to the Turf Reinforcement Mat. The Department will not measure any reworking of slopes or channels for payment as it is considered corrective work and incidental to the Turf Reinforcement Mat. Seeding and protection will be an incidental item.

**5.0 PAYMENT.** The Department will make payment for the completed and accepted quantities under the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
23274EN11F	Turf Reinforcement Mat 1	Square Yard
23275EN11F	Turf Reinforcement Mat 2	Square Yard
23276EN11F	Turf Reinforcement Mat 3	Square Yard
23277EN11F	Turf Reinforcement Mat 4	Square Yard

April 18, 2009

## **SPECIAL NOTE FOR LONGITUDINAL PAVEMENT JOINT ADHESIVE**

1. **DESCRIPTION.** This specification covers the requirements and practices for applying an asphalt adhesive material to the longitudinal joint of the surface course of an asphalt pavement. Apply the adhesive to the face of longitudinal joint between driving lanes for the first lane paved. Then, place and compact the adjacent lane against the treated face to produce a strong, durable, waterproof longitudinal joint.
2. **MATERIALS, EQUIPMENT, AND PERSONNEL.**

2.1 Joint Adhesive. Provide material conforming to Subsection 2.1.1.

2.1.1 Provide an adhesive conforming to the following requirements:

Property	Specification	Test Procedure
Viscosity, 400 ° F (Pa·s)	4.0 – 10.0	ASTM D 4402
Cone Penetration, 77 ° F	60 – 100	ASTM D 5329
Flow, 140 ° F (mm)	5.0 max.	ASTM D 5329
Resilience, 77 ° F (%)	30 min.	ASTM D 5329
Ductility, 77 ° F (cm)	30.0 min.	ASTM D 113
Ductility, 39 ° F (cm)	30.0 min.	ASTM D 113
Tensile Adhesion, 77 ° F (%)	500 min.	ASTM D 5329, Type II
Softening Point, ° F	171 min.	AASHTO T 53
Asphalt Compatibility	Pass	ASTM D 5329

Ensure the temperature of the pavement joint adhesive is between 380 and 410 °F when the material is extruded in a 0.125-inch-thick band over the entire face of the longitudinal joint.

2.2. Equipment.

2.2.1 Melter Kettle. Provide an oil-jacketed, double-boiler, melter kettle equipped with any needed agitation and recirculating systems.

2.2.2 Applicator System. Provide a pressure-feed-wand applicator system with an applicator shoe attached.

2.3 Personnel. Ensure a technical representative from the manufacturer of the pavement joint adhesive is present during the initial construction activities and available upon the request of the Engineer.

3. **CONSTRUCTION.**

3.1 Surface Preparation. Prior to the application of the pavement joint adhesive, ensure the face of the longitudinal joint is thoroughly dry and free from dust or any other debris that would inhibit adhesion. Clean the joint face by the use of compressed air.

Ensure this preparation process occurs shortly before application to prevent the return of debris on the joint face.

3.2 Pavement Joint Adhesive Application. Ensure the ambient temperature is a minimum of 40 ° F during the application of the pavement joint adhesive. Prior to applying the adhesive, demonstrate competence in applying the adhesive according to this note to the satisfaction of the Engineer. Heat the adhesive in the melter kettle to the specified temperature range. Pump the adhesive from the melter kettle through the wand onto the vertical face of the cold joint. Apply the adhesive in a continuous band over the entire face of the longitudinal joint. Do not use excessive material in either thickness or location. Ensure the edge of the extruded adhesive material is flush with the surface of the pavement. Then, place and compact the adjacent lane against the joint face. Remove any excessive material extruded from the joint after compaction (a small line of material may remain).

3.3 Pavement Joint Adhesive Certification. Furnish the joint adhesive's certification to the Engineer stating the material conforms to all requirements herein prior to use.

3.4 Sampling and Testing. The Department will require a random sample of pavement joint adhesive from each manufacturer's lot of material. Extrude two 5 lb. samples of the heated material and forward the sample to the Division of Materials for testing. Reynolds oven bags, turkey size, placed inside small cardboard boxes or cement cylinder molds have been found suitable. Ensure the product temperature is 400°F or below at the time of sampling.

4. MEASUREMENT. The Department will measure the quantity of Pavement Joint Adhesive in linear feet. The Department will not measure for payment any extra materials, labor, methods, equipment, or construction techniques used to satisfy the requirements of this note. The Department will not measure for payment any trial applications of Pavement Joint Adhesive, the cleaning of the joint face, or furnishing and placing the adhesive. The Department will consider all such items incidental to the Pavement Joint Adhesive.
5. PAYMENT. The Department will pay for the Pavement Joint Adhesive at the Contract unit bid price and apply an adjustment for each manufacturer's lot of material based on the degree of compliance as defined in the following schedule. When a sample fails on two or more tests, the Department may add the deductions, but the total deduction will not exceed 100 percent.

Pavement Joint Adhesive Price Adjustment Schedule						
Test	Specification	100% Pay	90% Pay	80% Pay	50% Pay	0% Pay
Joint Adhesive Referenced in Subsection 2.1.1						
Viscosity, 400 ° F (Pa•s)			3.0-3.4	2.5-2.9	2.0-2.4	≤1.9
ASTM D 3236	4.0-10.0	3.5-10.5	10.6-11.0	11.1-11.5	11.6-12.0	≥ 12.1
Cone Penetration, 77 ° F			54-56	51-53	48-50	≤ 47
ASTM D 5329	60-100	57-103	104-106	107-109	110-112	≥ 113
Flow, 140 ° F (mm) ASTM D 5329	≤ 5.0	≤ 5.5	5.6-6.0	6.1-6.5	6.6-7.0	≥ 7.1
Resilience, 77 ° F (%) ASTM D 5329	≥ 30	≥ 28	26-27	24-25	22-23	≤ 21
Tensile Adhesion, 77 ° F (%) ASTM D 5329	≥ 500	≥ 490	480-489	470-479	460-469	≤ 459
Softening Point, ° F AASHTO T 53	≥ 171	≥ 169	166-168	163-165	160-162	≤ 159
Ductility, 77 ° F (cm) ASTM D 113	≥ 30.0	≥ 29.0	28.0-28.9	27.0-27.9	26.0-26.9	≤ 25.9
Ductility, 39 ° F (cm) ASTM D 113	≥ 30.0	≥ 29.0	28.0-28.9	27.0-27.9	26.0-26.9	≤ 25.9

Code  
20071EC

Pay Item  
Joint Adhesive

Pay Unit  
Linear Foot

August 19, 2013

## **SPECIAL PROVISION FOR EMBANKMENT AT BRIDGE END BENT STRUCTURES**

This Special Provision will apply when indicated on the plans or in the proposal. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

**1.0 DESCRIPTION.** Construct a soil, granular, or rock embankment with granular or cohesive pile core and place structure granular backfill, as the Plans require. Construct the embankment according to the requirements of this Special Provision, the Plans, Standard Drawing RGX 100 and 105, and the 2012 Standard Specifications.

### **2.0 MATERIALS.**

**2.1 Granular Embankment.** Conform to Subsection 805.10. When Granular Embankment materials are erodible or unstable according to Subsection 805.03.04, use the Special Construction Methods found in 3.2 of the Special Provision.

**2.2 Rock Embankment.** Provide durable rock from roadway excavation that consists principally of Unweathered Limestone, Durable Shale (SDI equal to or greater than 95 according to KM 64-513), or Durable Sandstone.

**2.3 Granular Pile Core.** Select a gradation of durable rock to facilitate pile driving that conforms to Subsection 805.11. If granular pile core material hinders pile driving operations, take appropriate means necessary to reach the required pile tip elevation, at no expense to the Department.

**2.4 Cohesive Pile Core.** Conform to Section 206 of the Standard Specifications and use soil with at least 50 percent passing a No. 4 sieve having a minimum Plasticity Index (PI) of 10. In addition, keep the cohesive pile core free of boulders, larger than 6 inches in any dimension, or any other obstructions, which would interfere with drilling operations. If cohesive pile core material interferes with drilling operations, take appropriate means necessary to maintain excavation stability, at no expense to the Department.

**2.5 Structure Granular Backfill.** Conform to Subsection 805.11

**2.6 Geotextile Fabric.** Conform to Type I or Type IV in Section 214 and 843 as required in the plans.

### **3.0 CONSTRUCTION.**

**3.1 General.** Construct roadway embankments at end bents according to Section 206 and in accordance with the Special Provision, the Plans, and Standard Drawings for the full embankment section. In some instances, granular or rock embankment will be required for embankment construction for stability purposes, but this special provision does not prevent the use of soil when appropriate. Refer to the plans for specific details regarding material requirements for embankment construction.

Place and compact granular or cohesive pile core, soil, granular or rock embankment, and structure granular backfill according to the applicable density requirements for the project. When constructing granular or rock embankments, use granular pile core for driven pile foundations and use cohesive pile core for pre-drilled pile or drilled shaft foundations. Place geotextile fabric, Type IV between cohesive pile core and structure

granular backfill and granular or rock embankment.

When granular or rock embankment is required for embankment construction, conform to the general requirements of Subsection 206.03.02 B). In addition, place the material in no greater than 2-foot lifts and compact with a vibrating smooth wheel roller capable of producing a minimum centrifugal force of 15 tons. Apply these requirements to the full width of the embankment for a distance of half the embankment height or 50 feet, whichever is greater, as shown on Standard Drawing RGX-105.

When using granular pile core, install 8-inch perforated underdrain pipe at or near the elevation of the original ground in the approximate locations depicted on the standard drawing, and as the Engineer directs, to ensure positive drainage of the embankment. Wrap the perforated pipe with a fabric of a type recommended by the pipe manufacturer.

After constructing the embankment, excavate for the end bent cap, drive piling or install shafts, place the mortar bed, construct the end bent, and complete the embankment to finish grade according to the construction sequence shown on the Plans or Standard Drawings and as specified hereinafter.

Certain projects may require widening of existing embankments and the removal of substructures. Construct embankment according to the plans. Substructure removal shall be completed according to the plans and Section 203. Excavation may be required at the existing embankment in order to place the structure granular backfill as shown in the Standard Drawings.

After piles are driven or shafts installed (see design drawings), slope the bottom of the excavation towards the ends of the trench as noted on the plans for drainage. Using a separate pour, place concrete mortar, or any class concrete, to provide a base for forming and placing the cap. Place side forms for the end bent after the mortar has set sufficiently to support workmen and forms without being disturbed.

Install 4-inch perforated pipe in accordance with the plans and Standard Drawings. In the event slope protection extends above the elevation of the perforated pipe, extend the pipe through the slope protection.

After placing the end bent cap and removing adjacent forms, fill the excavation with structure granular backfill material to the level of the berm prior to placing beams for the bridge. For soil embankments, place Type IV geotextile fabric between embankment material and structure granular backfill. After completing the end bent backwall, or after completing the span end wall, place the structure granular backfill to subgrade elevation. If the original excavation is enlarged, fill the entire volume with compacted structure granular backfill at no expense to the Department. Do not place backfill before removing adjacent form work. Place structure granular backfill material in trench ditches at the ends of the excavation. Place Geotextile Fabric, Type IV over the surface of structure granular backfill prior to placing aggregate base course.

Tamp the backfill with hand tampers, pneumatic tampers, or other means the Engineer approves. Thoroughly compact the backfill under the overhanging portions of the structure to ensure that the backfill is in intimate contact with the sides of the structure.

Do not apply seeding, sodding, or other vegetation to the exposed granular embankment.

**3.2 Special Construction Methods.** Erodible or unstable materials may erode even when protected by riprap or channel lining; use the special construction method described below when using these materials.

Use fine aggregates or friable sandstone granular embankment at "dry land" structures only. Do not use them at stream crossings or locations subject to flood waters.

For erodible or unstable materials having 50 percent or more passing the No. 4 sieve, protect with geotextile fabric. Extend the fabric from the original ground to the top of slope over the entire area of the embankment slopes on each side of, and in front of, the



end bent. Cover the fabric with at least 12 inches of non-erodible material.

For erodible or unstable materials having less than 50 percent passing a No. 4 sieve, cover with at least 12 inches of non-erodible material.

Where erodible or unstable granular embankment will be protected by riprap or channel lining, place geotextile fabric between the embankment and the specified slope protection.

#### **4.0 MEASUREMENT.**

**4.1 Granular Embankment.** The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure for payment any Granular Embankment that is not called for in the plans.

The Department will not measure for payment any special construction caused by using erodible or unstable materials and will consider it incidental to the Granular Embankment regardless of whether the erodible or unstable material was specified or permitted.

**4.2 Rock Embankment.** The Department will not measure for payment any rock embankment and will consider it incidental to roadway excavation or embankment in place, as applicable. Rock embankments will be constructed using granular embankment on projects where there is no available rock present within the excavation limits of the project.

**4.3 Granular Pile Core.** The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure for payment furnishing and placing 8-inch perforated underdrain pipe and will consider it incidental to the Granular pile core. The Department will not measure for payment any granular pile core that is necessary because the contractor elects to use granular or rock embankment when it is not specified in the plans.

**4.4 Cohesive Pile Core.** The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204.

**4.5 Structure Granular Backfill.** The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure any additional material required for backfill outside the limits shown on the Plans and Standard Drawings for payment and will consider it incidental to the work.

The Department will not measure structure excavation at the end bent or an existing embankment for payment and will consider it incidental to Structure Granular Backfill.

The Department will not measure for payment the 4-inch perforated underdrain pipe and will consider it incidental to the Structure Granular Backfill.

**4.6 Geotextile Fabric.** The Department will measure the quantities as specified in Section 214. The Department will not measure the quantity of fabric used for separating granular or rock embankment and cohesive pile core and will consider it incidental to cohesive pile core.

**4.7 End Bent.** The Department will measure the quantities according to the

Contract. The Department will not measure furnishing and placing the 2-inch mortar or concrete bed for payment and will consider it incidental to the end bent construction.

**5.0 PAYMENT.** The Department will make payment for the completed and accepted quantities under the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
02223	Granular Embankment	Cubic Yards
20209EP69	Granular Pile Core	Cubic Yards
20210EP69	Cohesive Pile Core	Cubic Yards
02231	Structure Granular Backfill	Cubic Yards
02596, 02599	Geotextile Fabric, Type	See Section 214

The Department will consider payment as full compensation for all work required in this provision.

June 15, 2012

## **PART III**

### **EMPLOYMENT, WAGE AND RECORD REQUIREMENTS**

**TRANSPORTATION CABINET  
DEPARTMENT OF HIGHWAYS**

**LABOR AND WAGE REQUIREMENTS  
APPLICABLE TO OTHER THAN FEDERAL-AID SYSTEM PROJECTS**

- I. Application
- II. Nondiscrimination of Employees (KRS 344)
- III. Payment of Predetermined Minimum Wages
- IV. Statements and Payrolls

**I. APPLICATION**

1. These contract provisions shall apply to all work performed on the contract by the contractor with his own organization and with the assistance of workmen under his immediate superintendence and to all work performed on the contract by piecework, station work or by subcontract. The contractor's organization shall be construed to include only workmen employed and paid directly by the contractor and equipment owned or rented by him, with or without operators.

2. The contractor shall insert in each of his subcontracts all of the stipulations contained in these Required Provisions and such other stipulations as may be required.

3. A breach of any of the stipulations contained in these Required Provisions may be grounds for termination of the contract.

**II. NONDISCRIMINATION OF EMPLOYEES**

**AN ACT OF THE KENTUCKY  
GENERAL ASSEMBLY TO PREVENT  
DISCRIMINATION IN EMPLOYMENT  
KRS CHAPTER 344  
EFFECTIVE JUNE 16, 1972**

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (between forty and seventy); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age (between forty and seventy). The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, disability or age (between forty and seventy), except that such notice or advertisement may indicate a preference, limitation, or specification based on religion, or national origin when religion, or national origin is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual

because of his race, color, religion, national origin, sex, disability or age (between forty and seventy), in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

**III. PAYMENT OF PREDETERMINED MINIMUM WAGES**

1. These special provisions are supplemented elsewhere in the contract by special provisions which set forth certain predetermined minimum wage rates. The contractor shall pay not less than those rates.

2. The minimum wage determination schedule shall be posted by the contractor, in a manner prescribed by the Department of Highways, at the site of the work in prominent places where it can be easily seen by the workers.

**IV. STATEMENTS AND PAYROLLS**

1. All contractors and subcontractors affected by the terms of KRS 337.505 to 337.550 shall keep full and accurate payroll records covering all disbursements of wages to their employees to whom they are required to pay not less than the prevailing rate of wages. Payrolls and basic records relating thereto will be maintained during the course of the work and preserved for a period of one (1) year from the date of completion of this contract.

2. The payroll records shall contain the name, address and social security number of each employee, his correct classification, rate of pay, daily and weekly number of hours worked, itemized deductions made and actual wages paid.

3. The contractor shall make his daily records available at the project site for inspection by the State Department of Highways contracting office or his authorized representative.

Periodic investigations shall be conducted as required to assure compliance with the labor provisions of the contract. Interrogation of employees and officials of the contractor shall be permitted during working hours.

Aggrieved workers, Highway Managers, Assistant District Engineers, Resident Engineers and Project Engineers shall report all complaints and violations to the Division of Contract Procurement.

The contractor shall be notified in writing of apparent violations. The contractor may correct the reported violations and notify the Department of Highways of the action taken or may request an informal hearing. The request for hearing shall be in writing within ten (10) days after receipt of the notice of the reported violation. The contractor may submit

records and information which will aid in determining the true facts relating to the reported violations.

Any person or organization aggrieved by the action taken or the findings established as a result of an informal hearing by the Division of Contract Procurement may request a formal hearing.

4. The wages of labor shall be paid in legal tender of the United States, except that this condition will be considered satisfied if payment is made by a negotiable check, on a solvent bank, which may be cashed readily by the employee in the local community for the full amount, without discount or collection charges of any kind. Where checks are used for payments, the contractor shall make all necessary arrangements for them to be cashed and shall give information regarding such arrangements.

5. No fee of any kind shall be asked or accepted by the contractor or any of his agents from any person as a condition of employment on the project.

6. No laborers shall be charged for any tools used in performing their respective duties except for reasonably avoidable loss or damage thereto.

7. Every employee on the work covered by this contract shall be permitted to lodge, board, and trade where and with whom he elects and neither the contractor nor his agents, nor his employees shall directly or indirectly require as a condition of employment that an employee shall lodge, board or trade at a particular place or with a particular person.

8. Every employee on the project covered by this contract shall be an employee of either the prime contractor or an approved subcontractor.

9. No charge shall be made for any transportation furnished by the contractor or his agents to any person employed on the work.

10. No individual shall be employed as a laborer or mechanic on this contract except on a wage basis, but this shall not be construed to prohibit the rental of teams, trucks or other equipment from individuals.

No Covered employee may be employed on the work except in accordance with the classification set forth in the schedule mentioned above; provided, however, that in the event additional classifications are required, application shall be made by the contractor to the Department of Highways and (1) the Department shall request appropriate classifications and rates from the proper agency, or (2) if there is urgent need for additional classification to avoid undue delay in the work, the contractor may employ such workmen at rates deemed comparable to rates established for similar classifications provided he has made written application through the Department of Highways, addressed to the proper agency, for the supplemental rates. The contractor shall retroactively adjust, upon receipt of the supplemental rates schedule, the wages of any employee paid less than the established rate and may adjust the wages of any employee overpaid.

11. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any laborer or mechanic in any work-week in which he is employed on such work, to work in excess of eight hours in any calendar day or in excess of forty hours in such work-week unless such laborer or mechanic receives compensation at a rate not less than one and one half times his basic rate of pay for all hours worked in excess of eight hours in any calendar day or in excess of forty hours in such work-week. A laborer, workman or mechanic and an employer may enter into a written agreement or a collective bargaining agreement to work more than eight (8) hours a calendar day but not more than ten (10) hours a calendar day for the straight time hourly rate. This agreement shall be in writing and shall be executed prior to the employee working in excess of eight (8) hours, but not more than ten (10) hours, in any one (1) calendar day.

12. Payments to the contractor may be suspended or withheld due to failure of the contractor to pay any laborer or

mechanic employed or working on the site of the work, all or part of the wages required under the terms of the contract. The Department may suspend or withhold payments only after the contractor has been given written notice of the alleged violation and the contractor has failed to comply with the wage determination of the Department of Highways.

13. Contractors and subcontractors shall comply with the sections of Kentucky Revised Statutes, Chapter 337 relating to contracts for Public Works.

Revised 2-16-95

## EXECUTIVE BRANCH CODE OF ETHICS

In the 1992 regular legislative session, the General Assembly passed and Governor Brereton Jones signed Senate Bill 63 (codified as KRS 11A), the Executive Branch Code of Ethics, which states, in part:

KRS 11A.040 (6) provides:

No present or former public servant shall, within six (6) months of following termination of his office or employment, accept employment, compensation or other economic benefit from any person or business that contracts or does business with the state in matters in which he was directly involved during his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved in state government. This subsection shall not prohibit the performance of ministerial functions, including, but not limited to, filing tax returns, filing applications for permits or licenses, or filing incorporation papers.

KRS 11A.040 (8) states:

A former public servant shall not represent a person in a matter before a state agency in which the former public servant was directly involved, for a period of one (1) year after the latter of:

- a) The date of leaving office or termination of employment; or
- b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, Room 136, Capitol Building, 700 Capitol Avenue, Frankfort, Kentucky 40601; telephone (502) 564-7954.

### **Kentucky Equal Employment Opportunity Act of 1978**

The requirements of the Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) shall apply to this Contract. The apparent low Bidder will be required to submit EEO forms to the Division of Construction Procurement, which will then forward to the Finance and Administration Cabinet for review and approval. No award will become effective until all forms are submitted and EEO/CC has certified compliance. The required EEO forms are as follows:

- EEO-1: Employer Information Report
- Affidavit of Intent to Comply
- Employee Data Sheet
- Subcontractor Report

These forms are available on the Finance and Administration's web page under ***Vendor Information, Standard Attachments and General Terms*** at the following address:  
**<https://www.eProcurement.ky.gov>**.

Bidders currently certified as being in compliance by the Finance and Administration Cabinet may submit a copy of their approval letter in lieu of the referenced EEO forms.

For questions or assistance please contact the Finance and Administration Cabinet by email at **[finance.contractcompliance@ky.gov](mailto:finance.contractcompliance@ky.gov)** or by phone at 502-564-2874.

KENTUCKY LABOR CABINET  
PREVAILING WAGE DETERMINATION  
CURRENT REVISION  
HIGHWAY CONSTRUCTION LOCALITY NO. II

Determination No. CR-15-II-HWY

Project No.  
Highway

Date of Determination: July 20, 2015

This schedule of the prevailing rate of wages for Locality No. II including the counties of ADAIR, BARREN, BELL, BREATHITT, CASEY, CLAY, CLINTON, CUMBERLAND, ESTILL, FLOYD, GARRARD, GREEN, HARLAN, HART, JACKSON, JOHNSON, KNOTT, KNOX, LAUREL, LAWRENCE, LEE, LESLIE, LETCHER, LINCOLN, MCCREARY, MAGOFFIN, MARTIN, MENIFEE, METCALFE, MONROE, MORGAN, OWSLEY, PERRY, PIKE, POWELL, PULASKI, ROCKCASTLE, RUSSELL, TAYLOR, WAYNE, WHITLEY, and WOLFE has been determined in accordance with the provisions of KRS 337.505 to 337.550. This determination shall be referred to as Prevailing Wage Determination No. CR-15-II-HWY.

The following schedule of rates is to be used for highway construction projects advertised or awarded by the Kentucky Transportation Cabinet. This includes any contracts for the relocation of any utilities or other incidental construction projects advertised or awarded by public authorities as a result of the highway construction project.

Apprentices or trainees shall be permitted to work in accordance with Administrative Regulations. Copies of these regulations will be furnished upon request to any interested person.

Overtime is to be computed at not less than one and one-half (1 1/2) times the indicated BASE RATE for all hours worked in excess of eight (8) hours per day, or in excess of forty (40) hours per week. However, KRS 337.540 permits an employee and employer to agree, in writing, that the employee will be compensated at a straight time base rate for hours worked in excess of eight (8) hours in any one calendar day, but not more than ten (10) hours worked in any one calendar day, if such written agreement is prior to the over eight (8) hours in a calendar day actually being worked, or where provided for in a collective bargaining agreement. The fringe benefit rate is to be paid for each hour worked at a straight time rate for all hours worked. Fringe benefit amounts are applicable for all hours worked except when otherwise noted. Welders will receive rate for craft in which welding is incidental.

No laborer, workman or mechanic shall be paid at a rate less than that of the General Laborer except those classified as bona fide apprentices registered with the Kentucky State Apprenticeship Supervisor unless otherwise specified in this schedule of wage rates.



Anthony Russell, Commissioner  
Department of Workplace Standards



<u>CLASSIFICATIONS</u>	<u>RATE AND FRINGE BENEFITS</u>	
<b>BOILERMAKERS:</b>	BASE RATE	\$24.65
	FRINGE BENEFIT	12.94
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<b>BRICKLAYERS:</b>		
Bricklayers:	BASE RATE	\$22.90
	FRINGE BENEFITS	8.50
Stone Mason:	BASE RATE	\$21.50
	FRINGE BENEFITS	8.50
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<b>CARPENTERS:</b>		
Carpenters:	BASE RATE	\$24.90
	FRINGE BENEFITS	14.50
Piledrivers:	BASE RATE	\$24.55
	FRINGE BENEFITS	14.50
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<b>CEMENT MASONS:</b>	BASE RATE	\$21.25
	FRINGE BENEFITS	8.50
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<b>ELECTRICIANS:</b>	*BASE RATE	\$29.36
	FRINGE BENEFITS	10.55
*When workmen are required to work from bosum chairs, trusses, stacks, tanks, scaffolds, catwalks, radio and T.V. towers, structural steel (open, unprotected, unfloored raw steel), and bridges or similar hazardous locations where workmen are subject to a direct fall, except where using JLG's and bucket trucks up to 75 feet: Add 25% to workman's base rate for 50 to 75 feet, and add 50% to workman's base rate for over 75 feet.		
<b>LINEMAN:</b>	*BASE RATE	\$30.09
	FRINGE BENEFITS	10.94
<b>EQUIPMENT OPERATOR:</b>	*BASE RATE	\$26.90
	FRINGE BENEFITS	10.31
<b>GROUNDSMAN:</b>	*BASE RATE	\$17.79
	FRINGE BENEFITS	8.51
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<b>IRONWORKERS:</b>	BASE RATE	\$ 27.56
	FRINGE BENEFITS	20.57
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## CLASSIFICATIONS

## RATE AND FRINGE BENEFITS

### **LABORERS:**

GROUP 1: Aging and curing of concrete (any mode or method), asbestos abatement worker, asphalt plant laborers, asphalt laborers; batch truck dumpers; carpenter tenders, cement mason tenders, cleaning of machines, concrete laborers, demolition laborers, dredging laborers, drill helper, environmental laborer - nuclear, radiation, toxic and hazardous waste – Level D, flagmen, grade checkers, all hand digging and hand back filling, highway marker placers, landscaping laborers, mesh handlers and placers, puddler, railroad laborers, rip-rap and grouters, right of way laborers, sign, guard rail and fence installers (all types), signalmen, sound barrier installer, storm and sanitary sewer laborers, swampers, truck spotters and dumpers, wrecking of concrete forms, general cleanup:

HEAVY & HIGHWAY	BASE RATE	\$21.80
	FRINGE BENEFITS	12.36

GROUP 2: Batter board men (sanitary and storm sewer), brickmason tenders, mortar mixer operator, scaffold builders, burner and welder, bushammers, chain saw operator, concrete saw operators, deckhand scow man, dry cement handlers, environmental laborers – nuclear, radiation, toxic and hazardous waste – Level C, forklift operators for masonry, form setters, green concrete cutting, hand operated grouter and grinder machine operator, jack hammers, lead paint abatement, pavement breakers, paving joint machine, pipe layers – laser operators (non-metallic), plastic pipe fusion, power driven Georgia buggy and wheel barrow, power post hole diggers, precast manhole setters, walk-behind tampers, walk-behind trenchers, sand blasters, concrete chippers, surface grinders, vibrator operators, wagon drillers:

HEAVY & HIGHWAY	BASE RATE	\$22.05
	FRINGE BENEFITS	12.36

GROUP 3: Air track driller (all types), asphalt luteman and rakersm gunnite nozzleman, gunnite operators and mixers, grout pump operator, powderman and blaster, side rail setters, rail paved ditches, screw operators, tunnel laborers (free air), and water blasters:

HEAVY & HIGHWAY	BASE RATE	\$22.10
	FRINGE BENEFITS	12.36

GROUP 4: Caisson workers (free air), cement finishers, environmental laborer – nuclear, radiation, toxic and hazardous waste – Level A and B, miners and drillers (free air), tunnel blasters, and tunnel mockers (free air), directional and horizontal boring, air track drillers (all types), powder man and blasters, troxler and concrete tester if laborer is utilized:

HEAVY & HIGHWAY	BASE RATE	\$22.70
	FRINGE BENEFITS	12.36

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### **OPERATING ENGINEERS:**

#### Group A-1:

NCCCO or OECP Certified; Crane, dragline, hoist (1 drum when used for stack or chimney construction or repair), hoisting engineer (2 or more drums), orangepeel, overhead crane, piledriver, truck crane, tower crane, hydraulic crane:

BASE RATE	\$31.08
FRINGE BENEFITS	14.40

**CLASSIFICATIONS**

**RATE AND FRINGE BENEFITS**

**OPERATING ENGINEERS (CONTINUED):**

**Group A:**

Auto patrol, batcher plant, bituminous paver, cable-way, clamshell, concrete mixer (21 cu. ft. or over), concrete pump, crane, crusher plant, derrick, derrick boat, ditching and trenching machine, dragline, dredge engineer, elevator (regardless of ownership when used for hoisting any building material), elevating grader and all types of loaders, hoe-type machine, hoisting engine, locomotive, LeTourneau or carry-all scoop, bulldozer, mechanic, orangepeel bucket, piledriver, power blade, roller (bituminous), roller (earth), roller (rock), scarifier, shovel, tractor shovel, truck crane, well points, winch truck, push dozer, grout pump, high lift, fork lift (regardless of lift height), all types of boom cats, multiple operator, core drill, tow or push boat, A-Frame winch truck, concrete paver, gradeall, hoist, hyster, material pump, pumpcrete, ross carrier, sheepfoot, sideboom, throttle-valve man, rotary drill, power generator, mucking machine, rock spreader attached to equipment, scoopmobile, KeCal loader, tower cranes (French, German and other types), hydrocrane, tugger, backfiller guries, self-propelled compactor, self-contained hydraulic percussion drill:

BASE RATE	\$29.95
FRINGE BENEFITS	14.40

**Group B:**

All air compressors (200 cu. ft. per min. or greater capacity), bituminous mixer, concrete mixer (under 21 cu. ft.), welding machine, form grader, tractor (50 H.P. and over), bull float, finish machine, outboard motor boat, brakeman, mechanic helper, whirly oiler, tractair and road widening trencher, articulating trucks:

BASE RATE	\$27.26
FRINGE BENEFITS	14.40

**Group B2:**

Greaser on grease facilities servicing heavy equipment:

BASE RATE	\$27.68
FRINGE BENEFITS	14.40

**Group C:**

Bituminous distributor, cement gun, conveyor, mud jack, paving joint machine, pump, tamping machine, tractors (under 50 H.P.), vibrator, oiler, air compressors (under 200 cu. ft. per min. capacity), concrete saw, burlap and curing machine, hydro seeder, power form handling equipment, deckhand oiler, hydraulic post driver:

BASE RATE	\$26.96
FRINGE BENEFITS	14.40

**PAINTERS:**

All Excluding Bridges:

BASE RATE	\$19.92
FRINGE BENEFITS	9.57

Bridges:

BASE RATE	\$23.92
FRINGE BENEFITS	10.07

**CLASSIFICATIONS**

**RATE AND FRINGE BENEFITS**

**PLUMBERS:**

BASE RATE \$22.52  
FRINGE BENEFITS 7.80

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**SHEET METAL:**

BASE RATE \$20.40  
FRINGE BENEFITS 7.80

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**TRUCK DRIVERS:**

Truck helper and warehouseman:

BASE RATE \$23.20  
FRINGE BENEFITS 14.50

Driver, winch truck and A-Frame when used in  
transporting materials:

BASE RATE \$23.30  
FRINGE BENEFITS 14.50

Driver, (semi-trailer or pole trailer),  
driver (dump truck, tandem axle), driver of distributor:

BASE RATE \$23.40  
FRINGE BENEFITS 14.50

Driver on mixer trucks (all types):

BASE RATE \$23.45  
FRINGE BENEFITS 14.50

Truck mechanic:

BASE RATE \$23.50  
FRINGE BENEFITS 14.50

Driver (3 tons and under), tire changer  
and truck mechanic helper:

BASE RATE \$23.53  
FRINGE BENEFITS 14.50

Driver on pavement breakers:

BASE RATE \$23.55  
FRINGE BENEFITS 14.50

Driver (over 3 tons), driver (truck mounted rotary drill):

BASE RATE \$23.74  
FRINGE BENEFITS 14.50

Driver, Euclid and other heavy earth moving equipment  
and Low Boy:

BASE RATE \$24.31  
FRINGE BENEFITS 14.50

Greaser on greasing facilities:

BASE RATE \$24.40  
FRINGE BENEFITS 14.50

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**Kentucky Determination No. CR-15-II-HWY dated July 20, 2015**

Fringe benefit amounts are applicable for all hours worked except when otherwise noted.

No laborer, workman or mechanic shall be paid at a rate less than that of the General Laborer except those classified as bona fide apprentices registered with the Kentucky State Apprenticeship Supervisor unless otherwise specified in this schedule of wage rates.

These rates are listed pursuant to the Kentucky Determination No. CR-15-II-HWY dated July 20, 2015. Apprentices or trainees shall be permitted to work as such subject to Administrative Regulations adopted by the Commissioner of Workplace Standards. Copies of these regulations will be furnished upon request from any interested person.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U. S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the contractor shall submit evidence of approval and registration by the U. S. Bureau of Apprenticeship and Training.

The contract or shall submit to the Contracting Officer, written evidence of the established apprenticeship-journeyman ratios and wage rates in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

**TO: EMPLOYERS/EMPLOYEES**

**PREVAILING WAGE SCHEDULE:**

**The wages indicated on this wage schedule are the least permitted to be paid for the occupations indicated. When an employee works in more than one classification, the employer must record the numbers of hours worked in each classification at the prescribed hourly base rate.**

**OVERTIME:**

**Overtime is to be paid after an employee works eight (8) hours a day or forty (40) hours a week, whichever gives the employee the greater wage. At least time and one-half the base rate is required for all overtime. A laborer, workman or mechanic and an employer may enter into a written agreement or a collective bargaining agreement to work more than eight (8) hours a calendar day but not more than ten (10) hours a calendar day for the straight time hourly rate. Wage violations or questions should be directed to the designated Engineer or to the undersigned.**

Director  
Division of Construction Procurement  
Frankfort, Kentucky 40622  
502-564-3500

## **PART IV**

## **INSURANCE**

## INSURANCE

The Contractor shall procure and maintain the following insurance in addition to the insurance required by law:

- 1) Commercial General Liability-Occurrence form – not less than \$2,000,000 General aggregate, \$2,000,000 Products & Completed Aggregate, \$1,000,000 Personal & Advertising, \$1,000,000 each occurrence.
- 2) Automobile Liability- \$1,000,000 per accident
- 3) Employers Liability:
  - a) \$100,000 Each Accident Bodily Injury
  - b) \$500,000 Policy limit Bodily Injury by Disease
  - c) \$100,000 Each Employee Bodily Injury by Disease
- 4) The insurance required above must be evidenced by a Certificate of Insurance and this Certificate of Insurance must contain one of the following statements:
  - a) "policy contains no deductible clauses."
  - b) "policy contains \_\_\_\_\_ (amount) deductible property damage clause but company will pay claim and collect the deductible from the insured."
- 5) KENTUCKY WORKMEN'S COMPENSATION INSURANCE. The contractor shall furnish evidence of coverage of all his employees or give evidence of self-insurance by submitting a copy of a certificate issued by the Workmen's Compensation Board.

The cost of insurance is incidental to all contract items. All subcontractors must meet the same minimum insurance requirements.

# **PART V**

## **BID ITEMS**



Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	11,442.00	TON		\$	
0020	00020		TRAFFIC BOUND BASE	43.00	TON		\$	
0030	00078		CRUSHED AGGREGATE SIZE NO 2	15,262.00	TON		\$	
0040	00100		ASPHALT SEAL AGGREGATE	3.00	TON		\$	
0050	00103		ASPHALT SEAL COAT	1.00	TON		\$	
0060	00212		CL2 ASPH BASE 1.00D PG64-22	13,856.00	TON		\$	
0070	00301		CL2 ASPH SURF 0.38D PG64-22	901.00	TON		\$	
0080	00307		CL2 ASPH SURF 0.38B PG64-22	1,338.00	TON		\$	
0090	02599		FABRIC-GEOTEXTILE TYPE IV	49,922.00	SQYD		\$	
0100	20071EC		JOINT ADHESIVE	9,224.00	LF		\$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0460	01015		INSPECT & CERTIFY EDGE DRAIN SYSTEM	1.00	LS		\$	
0470	01810		STANDARD CURB AND GUTTER	6,103.00	LF		\$	
0480	01875		STANDARD HEADER CURB	41.00	LF		\$	
0490	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	10.00	EACH		\$	
0500	02001		CURB TO BARRIER WALL TRANS	8.00	EACH		\$	
0510	02014		BARRICADE-TYPE III	2.00	EACH		\$	
0520	02091		REMOVE PAVEMENT	171.00	SQYD		\$	
0530	02101		CEM CONC ENT PAVEMENT-8 IN	3,144.00	SQYD		\$	
0540	02200		ROADWAY EXCAVATION	53,131.00	CUYD		\$	
0550	02203		STRUCTURE EXCAV-UNCLASSIFIED	516.00	CUYD		\$	
0560	02242		WATER	1,000.00	MGAL		\$	
0570	02360		GUARDRAIL TERMINAL SECTION NO 1	7.00	EACH		\$	
0580	02367		GUARDRAIL END TREATMENT TYPE 1	4.00	EACH		\$	
0590	02369		GUARDRAIL END TREATMENT TYPE 2A	5.00	EACH		\$	
0600	02381		REMOVE GUARDRAIL	674.00	LF		\$	
0610	02397		TEMP GUARDRAIL	600.00	LF		\$	
0620	02429		RIGHT-OF-WAY MONUMENT TYPE 1	70.00	EACH		\$	
0630	02430		RIGHT-OF-WAY MONUMENT TYPE 1A	5.00	EACH		\$	
0640	02432		WITNESS POST	13.00	EACH		\$	
0650	02482		CHANNEL LINING CLASS IA	123.00	TON		\$	
0660	02483		CHANNEL LINING CLASS II	615.00	TON		\$	
0670	02484		CHANNEL LINING CLASS III	948.00	TON		\$	
0680	02545		CLEARING AND GRUBBING 5.6 ACRES	1.00	LS		\$	
0690	02551		CONCRETE-CLASS A FOR STEPS	1.12	CUYD		\$	
0700	02555		CONCRETE-CLASS B	222.00	CUYD		\$	
0710	02596		FABRIC-GEOTEXTILE TYPE I	3,022.00	SQYD		\$	
0720	02611		HANDRAIL-TYPE A-1	265.00	LF		\$	
0730	02619		HANDRAIL-TYPE A	13.00	LF		\$	
0740	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		\$	
0750	02651		DIVERSIONS (BY-PASS DETOURS)	1.00	LS		\$	
0760	02671		PORTABLE CHANGEABLE MESSAGE SIGN	4.00	EACH		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0770	02690		SAFELOADING	39.00	CUYD		\$	
0780	02701		TEMP SILT FENCE	4,256.00	LF		\$	
0790	02703		SILT TRAP TYPE A	1.00	EACH		\$	
0800	02704		SILT TRAP TYPE B	27.00	EACH		\$	
0810	02705		SILT TRAP TYPE C	48.00	EACH		\$	
0820	02706		CLEAN SILT TRAP TYPE A	15.00	EACH		\$	
0830	02707		CLEAN SILT TRAP TYPE B	27.00	EACH		\$	
0840	02708		CLEAN SILT TRAP TYPE C	48.00	EACH		\$	
0850	02710		SCARIFYING AND RESHAPING	112.00	SQYD		\$	
0860	02720		SIDEWALK-4 IN CONCRETE	3,291.00	SQYD		\$	
0870	02721		REMOVE CONCRETE SIDEWALK	136.00	SQYD		\$	
0880	02726		STAKING	1.00	LS		\$	
0890	02731		REMOVE STRUCTURE STATION 112+70	1.00	LS		\$	
0900	02731		REMOVE STRUCTURE STATION 116+25	1.00	LS		\$	
0910	02731		REMOVE STRUCTURE STATION 118+90	1.00	LS		\$	
0920	02731		REMOVE STRUCTURE STATION 129+25	1.00	LS		\$	
0930	02731		REMOVE STRUCTURE STATION 141+40	1.00	LS		\$	
0940	05950		EROSION CONTROL BLANKET	601.00	SQYD		\$	
0950	05953		TEMP SEEDING AND PROTECTION	2,840.00	SQYD		\$	
0960	05963		INITIAL FERTILIZER	2.00	TON		\$	
0970	05964		20-10-10 FERTILIZER	2.00	TON		\$	
0980	05985		SEEDING AND PROTECTION	36,031.00	SQYD		\$	
0990	05990		SODDING	6,573.00	SQYD		\$	
1000	05992		AGRICULTURAL LIMESTONE	24.00	TON		\$	
1010	06510		PAVE STRIPING-TEMP PAINT-4 IN	43,712.00	LF		\$	
1020	06514		PAVE STRIPING-PERM PAINT-4 IN	24,669.00	LF		\$	
1030	06550		PAVE STRIPING-TEMP REM TAPE-W	2,000.00	LF		\$	
1040	06551		PAVE STRIPING-TEMP REM TAPE-Y	2,000.00	LF		\$	
1050	06571		PAVE MARKING-PAINT PARKING LOT	186.00	LF		\$	
1060	06574		PAVE MARKING-THERMO CURV ARROW	22.00	EACH		\$	
1070	06588		PAVEMENT MARKER TY IVA-BY TEMP	320.00	EACH		\$	
1080	06591		PAVEMENT MARKER TYPE V-BY	230.00	EACH		\$	
1090	08019		CYCLOPEAN STONE RIP RAP	4,533.00	TON		\$	
1100	08100		CONCRETE-CLASS A	2.73	CUYD		\$	
1110	08150		STEEL REINFORCEMENT	77.00	LB		\$	
1120	20206EC		PAVE MARK HANDICAP SYMBOL	1.00	EACH		\$	
1130	20870ND		REMOVE AND RESET HISTORIC MARKERS	1.00	EACH		\$	
1140	21802EN		G/R STEEL W BEAM-S FACE (7 FT POST)	925.00	LF		\$	
1150	23158ES505		DETECTABLE WARNINGS	360.00	SQFT		\$	
1160	23878EC		ADJUST MONITORING WELL	5.00	EACH		\$	
1170	24489EC		INLAID PAVEMENT MARKER	230.00	EACH		\$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1180	00440		ENTRANCE PIPE-15 IN	318.00	LF		\$	
1190	00501		CULVERT PIPE-60 IN EQUIV	354.00	LF		\$	
1200	00521		STORM SEWER PIPE-15 IN	1,376.00	LF		\$	
1210	00522		STORM SEWER PIPE-18 IN	283.00	LF		\$	
1220	00524		STORM SEWER PIPE-24 IN	1,496.00	LF		\$	
1230	00526		STORM SEWER PIPE-30 IN	388.00	LF		\$	
1240	01000		PERFORATED PIPE-4 IN	359.00	LF		\$	
1250	01005		PERFORATED PIPE EDGE DRAIN-4 IN	5,029.00	LF		\$	
1260	01010		NON-PERFORATED PIPE-4 IN	31.00	LF		\$	
1270	01202		PIPE CULVERT HEADWALL-15 IN	1.00	EACH		\$	
1280	01204		PIPE CULVERT HEADWALL-18 IN	2.00	EACH		\$	
1290	01208		PIPE CULVERT HEADWALL-24 IN	2.00	EACH		\$	
1300	01210		PIPE CULVERT HEADWALL-30 IN	1.00	EACH		\$	
1310	01221		PIPE CULVERT HEADWALL-60 IN EQUIV	2.00	EACH		\$	
1320	01432		SLOPED BOX OUTLET TYPE 1-15 IN	2.00	EACH		\$	
1330	01480		CURB BOX INLET TYPE B	38.00	EACH		\$	
1340	01490		DROP BOX INLET TYPE 1	5.00	EACH		\$	
1350	01493		DROP BOX INLET TYPE 2	2.00	EACH		\$	
1360	01559		DROP BOX INLET TYPE 13G	1.00	EACH		\$	
1370	01577		DROP BOX INLET TYPE 14	2.00	EACH		\$	
1380	01650		JUNCTION BOX	1.00	EACH		\$	
1390	01756		MANHOLE TYPE A	5.00	EACH		\$	
1400	01761		MANHOLE TYPE B	2.00	EACH		\$	
1410	01767		MANHOLE TYPE C	1.00	EACH		\$	
1420	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	6,907.00	SQYD	\$2.00	\$	\$13,814.00
1430	23822EC		CORED HOLE DRAINAGE BOX CON-15 IN	1.00	EACH		\$	
1440	24585EC		SECURITY PLATE ASSEMBLY	12.00	EACH		\$	
1450	24814EC		PIPELINE INSPECTION	3,588.00	LF		\$	

Section: 0004 - BRIDGE-25161

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1460	02998		MASONRY COATING	312.00	SQYD		\$	
1470	03299		ARMORED EDGE FOR CONCRETE	117.00	LF		\$	
1480	08001		STRUCTURE EXCAVATION-COMMON	1,218.00	CUYD		\$	
1490	08002		STRUCTURE EXCAV-SOLID ROCK	199.00	CUYD		\$	
1500	08100		CONCRETE-CLASS A	329.80	CUYD		\$	
1510	08104		CONCRETE-CLASS AA	66.90	CUYD		\$	
1520	08150		STEEL REINFORCEMENT	29,702.00	LB		\$	
1530	08151		STEEL REINFORCEMENT-EPOXY COATED	13,433.00	LB		\$	
1540	08668		PRECAST PC BOX BEAM SB17	192.00	LF		\$	
1550	21532ED		RAIL SYSTEM TYPE III	66.40	LF		\$	
1560	23813EC		DECK DRAIN	4.00	EACH		\$	
1570	23849EC		BICYCLE RAIL	132.80	LF		\$	

Section: 0005 - BRIDGE-25162

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1580	02223		GRANULAR EMBANKMENT	288.00	CUYD		\$	
1590	08001		STRUCTURE EXCAVATION-COMMON	340.00	CUYD		\$	
1600	08002		STRUCTURE EXCAV-SOLID ROCK	13.00	CUYD		\$	
1610	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1620	08100		CONCRETE-CLASS A	152.00	CUYD		\$	
1630	08150		STEEL REINFORCEMENT	23,438.00	LB		\$	

Section: 0006 - BRIDGE-25164

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1640	02231		STRUCTURE GRANULAR BACKFILL	233.80	CUYD		\$	
1650	02998		MASONRY COATING	1,188.00	SQYD		\$	
1660	03299		ARMORED EDGE FOR CONCRETE	106.00	LF		\$	
1670	08001		STRUCTURE EXCAVATION-COMMON	6,305.00	CUYD		\$	
1680	08002		STRUCTURE EXCAV-SOLID ROCK	106.00	CUYD		\$	
1690	08019		CYCLOPEAN STONE RIP RAP	2,352.00	TON		\$	
1700	08033		TEST PILES	82.00	LF		\$	
1710	08046		PILES-STEEL HP12X53	556.00	LF		\$	
1720	08094		PILE POINTS-12 IN	18.00	EACH		\$	
1730	08100		CONCRETE-CLASS A	285.20	CUYD		\$	
1740	08104		CONCRETE-CLASS AA	368.10	CUYD		\$	
1750	08150		STEEL REINFORCEMENT	40,575.00	LB		\$	
1760	08151		STEEL REINFORCEMENT-EPOXY COATED	105,919.00	LB		\$	
1770	08633		PRECAST PC I BEAM TYPE 3	971.00	LF		\$	
1780	21532ED		RAIL SYSTEM TYPE III	330.00	LF		\$	
1790	23813EC		DECK DRAIN	22.00	EACH		\$	
1800	23849EC		BICYCLE RAIL	660.00	LF		\$	

Section: 0007 - UTILITY-ELECTRIC AND COMMUNICATIONS

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1810	05985		SEEDING AND PROTECTION	2,147.00	SQYD		\$	
1820	17005		EC DUCT - 03 BANK	80.00	LF		\$	
1830	17519		EC ELECTRIC STRUCTURE SPECIAL INST	1.00	EACH		\$	

Section: 0008 - SEWER

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1840	15000		S BYPASS PUMPING	17.00	EACH		\$	
1850	15012		S ENCASEMENT CONCRETE	158.00	LF		\$	
1860	15016		S ENCASEMENT STEEL BORED RANGE 3	58.00	LF		\$	
1870	15017		S ENCASEMENT STEEL BORED RANGE 4	404.00	LF		\$	
1880	15018		S ENCASEMENT STEEL BORED RANGE 5	150.00	LF		\$	
1890	15023		S ENCASEMENT STEEL OPEN CUT RANGE 4	42.00	LF		\$	
1900	15088		S LATERAL LONG SIDE 06 INCH	1.00	EACH		\$	
1910	15089		S LATERAL SHORT SIDE 04 INCH	11.00	EACH		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1920	15090		S LATERAL SHORT SIDE 06 INCH	1.00	EACH		\$	
1930	15092		S MANHOLE	32.00	EACH		\$	
1940	15093		S MANHOLE ABANDON/REMOVE	10.00	EACH		\$	
1950	15094		S MANHOLE ADJUST TO GRADE	2.00	EACH		\$	
1960	15096		S MANHOLE CASTING WATERTIGHT	2.00	EACH		\$	
1970	15099		S MANHOLE TAP EXISTING	11.00	EACH		\$	
1980	15101		S MANHOLE WITH DROP	1.00	EACH		\$	
1990	15112		S PIPE PVC 08 INCH	3,367.00	LF		\$	
2000	15113		S PIPE PVC 10 INCH	460.00	LF		\$	

Section: 0009 - SIGNALIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2010	04740		POLE BASE	2.00	EACH		\$	
2020	04844		CABLE-NO. 14/5C	70.00	LF		\$	
2030	04950		REMOVE SIGNAL EQUIPMENT	2.00	EACH		\$	
2040	22939ND		INSTALL LUMINAIRE POLE	2.00	EACH		\$	
2050	24601EC		INSTALL SOLAR POWERED BEACON CONTROLLER	2.00	EACH		\$	

Section: 0010 - LIGHTING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0110	03381		PVC PIPE-2 IN	4,200.00	LF		\$	
0120	04740		POLE BASE	22.00	EACH		\$	
0130	04820		TRENCHING AND BACKFILLING	3,405.00	LF		\$	
0140	20391NS835		ELECTRICAL JUNCTION BOX TYPE A	14.00	EACH		\$	
0150	21543EN		BORE AND JACK CONDUIT	795.00	LF		\$	

Section: 0011 - WATERLINE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0160	14004		W DIRECTIONAL BORE	585.00	LF		\$	
0170	14006		W ENCASEMENT STEEL BORED RANGE 1	403.00	LF		\$	
0180	14008		W ENCASEMENT STEEL BORED RANGE 3	56.00	LF		\$	
0190	14009		W ENCASEMENT STEEL BORED RANGE 4	205.00	LF		\$	
0200	14012		W ENCASEMENT STEEL OPEN CUT RANGE 1	60.00	LF		\$	
0210	14015		W ENCASEMENT STEEL OPEN CUT RANGE 4	179.00	LF		\$	
0220	14018		W FIRE HYDRANT ADJUST	2.00	EACH		\$	
0230	14019		W FIRE HYDRANT ASSEMBLY	2.00	EACH		\$	
0240	14028		W METER 3/4 INCH	39.00	EACH		\$	
0250	14029		W METER ADJUST	9.00	EACH		\$	
0260	14036		W PIPE DUCTILE IRON 06 INCH	300.00	LF		\$	
0270	14037		W PIPE DUCTILE IRON 08 INCH	4,180.00	LF		\$	
0280	14048		W PIPE DCTL IRON RSTRND JOINT 08 IN	150.00	LF		\$	
0290	14056		W PIPE PVC 02 INCH	397.00	LF		\$	
0300	14057		W PIPE PVC 03 INCH	654.00	LF		\$	

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PROPOSAL BID ITEMS

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0310	14074		W PLUG EXISTING MAIN	31.00	EACH		\$	
0320	14077		W SERV PE/PLST LONG SIDE 1 IN	2.00	EACH		\$	
0330	14079		W SERV PE/PLST LONG SIDE 2 IN	1.00	EACH		\$	
0340	14080		W SERV PE/PLST LONG SIDE 3/4 IN	7.00	EACH		\$	
0350	14082		W SERV PE/PLST SHORT SIDE 1 IN	3.00	EACH		\$	
0360	14085		W SERV PE/PLST SHORT SIDE 3/4 IN	31.00	EACH		\$	
0370	14092		W TIE-IN 03 INCH	1.00	EACH		\$	
0380	14094		W TIE-IN 06 INCH	2.00	EACH		\$	
0390	14096		W TIE-IN 10 INCH	4.00	EACH		\$	
0400	14102		W VALVE 02 INCH	3.00	EACH		\$	
0410	14103		W VALVE 03 INCH	5.00	EACH		\$	
0420	14105		W VALVE 06 INCH	4.00	EACH		\$	
0430	14106		W VALVE 08 INCH	9.00	EACH		\$	

Section: 0012 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0440	02568		MOBILIZATION	1.00	LS		\$	
0450	02569		DEMOBILIZATION	1.00	LS		\$	